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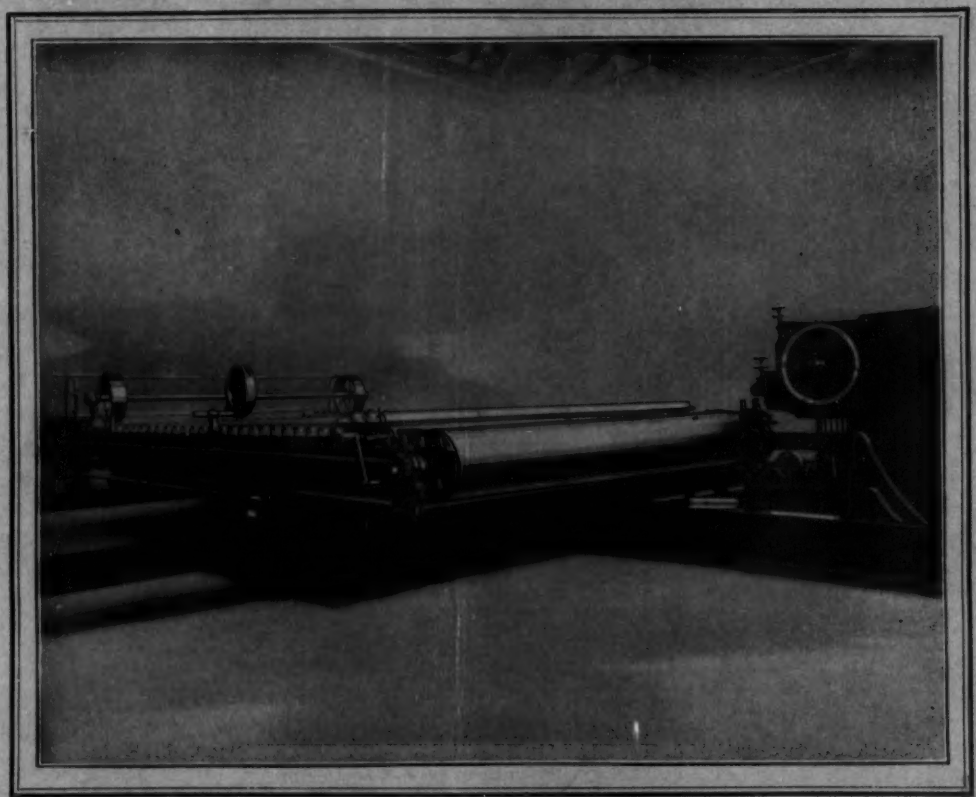

Showing Beloit Removable Fourdrinier rolled out by power as a unit preparatory to installing wire. Aligument of rolls is not disturbed. Rolls, savealls and suction boxes are not dismantled. The table rolls out as a unit, making the task of installing wires simple indeed.

IN MAKING WIRE CHANGES, CONSIDER THE MEN

IF you do not use the REMOVABLE FOURDRINIER in your mill, just observe the proceedings the next time wires are changed. What do you see? Confusion. Extra crews called in. Everybody working like fury. Sweating. Hustling. Bang! A bearing drops on the cement floor and is damaged—or maybe it's a table or breast roll. You can see that it's no easy job, with the men lifting heavy rolls and suction boxes. Even with the use of crane or "cigarette holder" it's a precarious job.

Such back-breaking, nerve-racking, body-straining tasks were not meant for men, no matter how stalwart your crew may be. Not in this enlightened age, when such tasks can be done by machinery.

When you see the REMOVABLE method in operation it makes you think—and act. Of the many mills using the REMOVABLE, one is probably near enough to you to make a visit convenient. Such a visit will be time well spent for anyone.

The REMOVABLE way is the MODERN way

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That intangible

something

EBG SERVICE is a vision made substantial. Practical also in its manifold benefits to users of this pioneer Liquid Chlorine.

Its sound basis is, of course, a quality product. But that alone we feel is not enough. So EBG places upon sales a rigid interpretation of business ethics. Upon servicing, a broad conception of cooperation.

This attitude toward our customers explains many things—including that sense of satisfaction which users of EBG Liquid Chlorine invariably experience.

EBG

Liquid Chlorine

Electro Bleaching Gas Co.

PIONEER MANUFACTURERS of LIQUID CHLORINE

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Main office 9 East 41st Street New York

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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., Inc.

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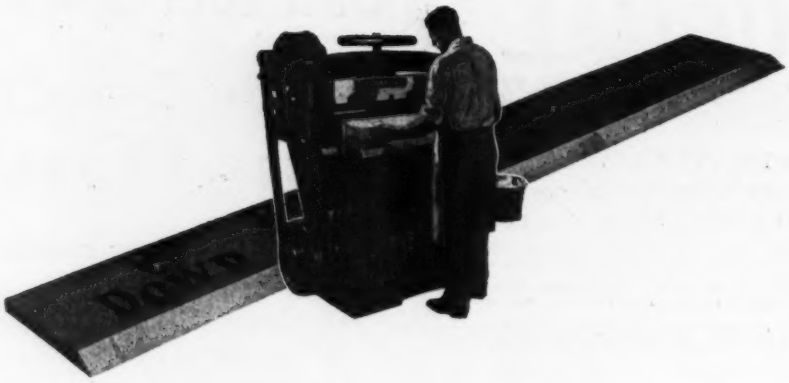

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Makers of Better Cutting Knives Since 1847

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ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. LXXXVI, No. 14 — PAPER — Thursday, April 5, 1928

Crown-Willamette and Zellerbach Corp. Merge

Will Operate as the Crown Zellerbach Corp. and Will Have Combined Assets of $100,000,000 Numerous Pulp and Paper Mills and Vast Timber Holdings in the Pacific Northwest Involved in the Consolidation—The New Corporation Will, It Is Said, Have a Capacity of 1,450 Tons of Paper Daily

Press dispatches early in the week announced the merger of the Crown Willamette Paper Company and the Zellerbach Corporation, with combined assets of $100,000,000 and owning some 350,000 acres of timber lands in Pacific Coast territory and many paper mills in the Pacific Northwest, subject to the sanction of the stockholders.

The new company will have a daily capacity of 1,450 tons of finished paper. The name will be changed to the Crown Zellerbach Corporation and the capital structure will be increased to 50,000 shares of convertible preferred stock, 200,000 shares of $5 dividend cumulative preferred stock and 2,000,000 shares common. As the Crown Willamette stock is now listed on the New York Exchange it is anticipated that the stock of the new concern also will be listed.

A stock dividend of 5½ per cent will be paid to present common stockholders of the Zellerbach Corporation, bringing their holdings in the new company to 1,000,000 shares, including that set aside for the unconverted proportion of the convertible preferred stock.

The next step will be a dividend of 20 per cent on the above mentioned 1,000,000 shares, payable in $5 cumulative preferred stock, distributing 200,000 shares. After that 1,000,000 shares of additional common will be exchanged share for share with Crown Willamette. It is expected that the new common stock will immediately pay dividends at the rate of $1 a share a year. The bonds and preferred stocks of Crown Willamette will remain outstanding.

Shipping Pulp on the Hudson

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., April 2, 1928.—The ocean steamship Laila, the largest to ever come up the Hudson River with a cargo, is docked at the barge canal terminal in North Albany discharging a cargo of wood pulp for the A. P. W. Paper Company. The huge steamship arrived at noon last Friday from Sheer Harbor, Nova Scotia, after one of the roughest voyages ever experienced by the crew. The work of unloading the boat is being rushed and will be completed by Thursday at the latest.

The boat carried 2,050 tons of pulp from the Sheer Harbor mills of the A. P. W. Pulp and Power Company, a subsidiary of the A. P. W. Paper Company. This is the largest shipment of pulp received by the local paper concern since the all water route has been in use. Usually the steamers coming from Nova Scotia with pulp shipments are forced to dispose of part of the cargo at New York to allow the vessels to negotiate the shallow channel to Albany. The Laila, however, found the river so high that it was able to proceed to this port with the original cargo intact.

The new warehouse recently completed by the A. P. W. Paper Company with its huge traveling crane is being used for the first time and officials of the company are well pleased with the working of the new facilities for handling the pulp shipments. The company expects to maintain regular weekly shipments from Nova Scotia to Albany for the remainder of the season although later cargoes are expected to be smaller than the one brought by the Laila as the present high water is only temporary. During last summer the numerous pulp cargoes unloaded at the North Albany terminal averaged about 1,800 tons.

Grays Harbor Paper Co. Lets Contract

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., March 29, 1928.—The Grays Harbor Pulp and Paper Company has let the contract for the construction of a 1,400-foot tunnel through Campbell's hill in East Hoquiam, Wash., to Swan Dahlberg of Port Angeles. Baar & Cunningham, Portland, are consulting engineers on the project. They are now receiving bids on the pumps to be installed in the pumping house soon to be completed.

The size of the tunnel has been announced as five or six feet, the size to be determined by the formation encountered by the diggers. This tunnel will carry the pipe line through a short cut, saving several thousand feet of pipe line around the hill.

H. F. Watson Co. in Merger

[FROM OUR REGULAR CORRESPONDENT]

ERIE, Pa., March 28, 1928.—Ratification of the merger of the H. F. Watson Paper Company of Erie with the Rubberoid Company of New York and the Continental Roofing and Manufacturing Company of Baltimore was voted here yesterday by stockholders of the local concern. The Watson company has two large roofing paper plants here.

Longview Fibre Co. Ships Products East

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., March 29, 1928.—The steamer Missourian is taking 500 tons of products from the Longview Fibre Company's plant, Longview, Wash., to Boston, Philadelphia and New York, loading the last week in March.

I. P. Co. Surveys Labrador Pulpwood Resources

Well Equipped Party of Experts Are Making Exhaustive Reports Upon Local Forests and Power Sites for International Paper Co.—May Take Big Part in Developing Largest Single Undeveloped Water Power and Forest Reserve Remaining on Continent

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 2, 1928.—The information that the International Paper Company has a large staff of timber cruisers and other experts at work in the vast area of Labrador which, by decision of the Privy Council, has passed from the possession of Canada to that of Newfoundland, and that that company may take part in developing what is the largest single undeveloped water power and forest reserve remaining on this continent, is contained in a letter published in the *London Times* by the Hon. Victor Gordon, High Commissioner for Newfoundland in England. Mr. Gordon writes as follows:

"Since this century began there has been no more outstanding economic development on the North American continent than the rapid increase of the utilization of water power energy. Canada today can boast the second largest installation of hydro-electric power in the world, but it is an authentic fact that Labrador possesses a single great series of power resources which, if harnessed, could produce almost as much electricity as all the existing plants in the dominion. Through the center of the peninsula of Labrador flows a mighty stream, the Hamilton River, and at one point in the course of the five miles it drops 200 feet in tremendous rapids and then, with a roar audible 20 miles away, it makes a final plunge into a circular basin 315 feet below. Here is a cataract as large as Niagara, and experts have calculated that more than 4,300,000 horsepower could be obtained from it.

No Dearth of Raw Materials

"Yet hydro-electric energy is useless unless it can be applied to some task, and happily there is no dearth of natural materials which only await the application of electrical energy for their transformation into marketable commodities. Within a radius of 75 miles in a northward direction from Grand Falls the Canadian geologist, A. P. Low, in 1893, discovered in Cambrian formations immense ore bodies of hematite, magnetite, and siderite, rich in manganese, and their yield of metallic iron was estimated as varying between 40 and 55 per cent. Recent investigations conducted by geological experts dispatched by the Quebec government, have confirmed the accuracy of Mr. Low's report and there is no reason why the success which has attended the manufacture of electrolytic steel on the Italian side of the Alps should not be reproduced in Labrador. Only systematic prospecting will reveal what other mineral resources exist in the country; traces of gold and silver have been found, but a gold rush, stimulated by unscrupulous speculators in the years 1923-25, which brought hundreds of prospectors and adventurers to Labrador has left unhappy memories.

Vast Pulp Wood Resources

"Yet the most reliable source of wealth awaiting exploitation probably consists of vast tracts of spruce, birch, fir, poplar and other trees, which are to be found in the basin of the Hamilton River and other parts of Labrador; and in them exists the basis for an extensive pulp and paper industry. There is considerable divergence of view about the seriousness of the depletion of Canada's forest resources, but clearly they are not inexhaustible, and the time is coming when other sources must be tapped to fill the seemingly insatiable maw of the printing presses of the United States. Various interests have undertaken surveys of the pulp wood resources of Labrador, and this winter the International Paper Company, the great American corporation which has already acquired a veritable empire in Canada and Newfoundland, is maintaining in the country a well-equipped party of timber cruisers and other experts who are making an exhaustive report upon the local forests and power sites."

Huge Power Project in Manitoba

The Winnipeg Electric Company will proceed immediately with a $15,000,000 project for the development of the Seven Sisters Falls power site on the Winnipeg River. Instead of developing the power itself, the Manitoba government will purchase the required power from the company for a period of 30 years at $13.80 per horsepower. It is estimated that close to a quarter of a million horsepower can be developed at the site.

The Fly in the Ointment

O'Brien and Williams, one of the largest stockbroking firms in Montreal, make the following reference in their current market letter to the news print situation:

"The only fly in the bullish ointment just now is the halt in the news print situation. However, it is not polite to mention this in bullish circles and the man who draws attention to the fact that news print has slowed up takes his life in his hands."

More Merger Rumors

Merger rumors are again in circulation regarding the Brompton Pulp and Paper Company, and the shares of the company have been showing marked strength on the Montreal Stock Exchange. A higher bid is stated to have been made by Canada Power and Paper following the reported refusal by Brompton directors of an offer some time ago. The more recent price offered for the stock by the big St. Maurice Valley consolidation is reported at 80.

It is also thought that sooner or later the Wayagamack Pulp and Paper Company will be brought into one of the big consolidations. Wayagamack is the only other company, besides Canada Power and Paper and International Paper, driving the lower reaches of the St. Maurice River, and as the tendency is all towards consolidation, it seems entirely reasonable to expect them to be absorbed in due course. An examination will show that the directors could not be expected to sell the company at anything like the present market figure. Control is held by a small group headed by the president. These men have built up the company and know its worth.

Some color has been lent to the rumor that a merger between the Howard Smith, Provincial Paper and Rolland Paper Companies by the admission last week by C. Howard Smith that, while no definite offer had been received for control of his company, conversations looking towards that end had taken place.

Howard Smith Co. Confirms Deal

Since the above was written an official announcement has been issued stating that the directors of the Howard Smith Paper Mills, Limited, have accepted an offer of $150 per share for all the common stock of the company. The offer was made by the local investment firm of Holt, Gundy & Co. The Canada Paper Company, in which several large paper concerns are merged is already included in the Holt Gundy group. Following are the properties of the Howard Smith Company:

Beauharnois Mill: This mill is used for the manufacture of tub-sized and loft-dried paper and has a capacity of 500 tons of loft-dried paper per month.

Crabtree Mill: This mill is used for the manufacture of book and writing papers, with a capacity of 1,000 tons per month. There

is a developed water power of 1,400 h.p. of which 700 h.p. is converted into electricity.

Cornwall Mill: Contains one sulphite pulp mill with a capacity of 60 tons per day. This mill has a capacity of 1,200 tons per month. A bleaching plant is also operated, located at Cornwall, Ont.

Gaspe, Que.: About 490 square miles of exceptionally fine timber limits with lumber mills and rossing plant.

Kinleith Paper Mills, Ltd.: The business of these mills was acquired during 1924.

Bathurst Co. Not to Build New Mill

Some interesting information regarding the Bathurst Company's developments was made public in the discussion prior to the passing, by the New Brunswick Legislature, of a bill relating to the transfer of the rights of the Bathurst Company, Ltd., to the Bathurst Paper and Power Company, Ltd., controlled by Nesbitt Thomson & Co., of Montreal.

The bill contained a guarantee that the new company would undertake the carrying out of undertakings of the former one and proceed with the hydro development on the Nepisiguit River or else forfeit its rights, within a specified time. At the same time, however, it was stated that while the company would double the capacity of the Bathurst plant, they would not build another mill just now, because their timber limits in New Brunswick, by the advice of the Crown Land officials themselves, are not sufficient to supply in perpetuity more than sufficient to supply a plant double the present one. There is also the ban in Quebec against the exportation of pulp wood to New Brunswick and, these things being considered, the company does not feel justified in putting up a new mill, at least until these doubts have been definitely settled.

In New Brunswick the company have a reserve of 4,347,166 cords of pulp wood on an area of 1,093 square miles, while in Quebec they have 21,289,320 cords on an area of 1,529 square miles. The annual growth on the New Brunswick limits is estimated at 95,000 cords. The plant at present needs 85,000 cords annually with an additional 30,000 when the new machinery is installed and in doubling the capacity of the mill the aim is to use the total maximum cut. The additional power necessary for this development on the Nepisiguit River, some 40,000 horsepower, will also provide a surplus of electrical energy for sale to others.

Abitibi Head Office Question

Regarding the proposal of the Abitibi Power and Paper Company to change the head office of the company from Montreal to Iroquois Falls, the *Financial Times*, of Montreal, suggests that while this may be preferable for administrative purposes, it would be a mistake to hold the annual meeting in the Northern Ontario town. It continues: "It would, we suggest, be advisable that these meetings be held in Montreal or Toronto. The company meetings have always been held in Montreal, and, if this arrangement were continued, it would facilitate the personal representation of the large proportion of the shares controlled in this city. Annual meetings of large, well managed corporations are not usually largely attended by the shareholders, but this does not remove the responsibility of the directors to make it convenient for the shareholders to attend if they do desire."

To Build New Dam for Storage

[FROM OUR REGULAR CORRESPONDENT]

GOUVERNEUR, N. Y., March 26, 1928.—Michael Doyle, of Rochester, president of the International Pulp Company and head also of the Oswegatchie Light and Power Company, spent a few days at the local offices of the company during the past week on business. During his stay he negotiated an option on land adjoining the property of the Rossie Light and Power Company which it is understood will be used during the coming summer in connection with plans for the construction of a new dam for storage purposes.

Canadian Paper Exports Increase

The regular report of the Canadian Pulp and Paper Association shows that exports of pulp and paper from Canada in February were valued at $15,771,788 which was an increase of $1,983,746 over the previous month and of $2,794,823 over February, 1927.

Exports of woodpulp for the month were valued at $3,403,212 and exports of paper at $12,368,576 as compared with $3,071,447 and $10,716,595 respectively in January.

Quantities and values for the various grades of pulp and paper are as follows:

	February, 1928		February, 1927	
PULP	Tons	$	Tons	$
Mechanical	14,371	374,921	13,545	385,800
Sulphite Bleached	18,064	1,339,896	17,043	1,304,609
Sulphite Unbleached	14,845	759,701	15,036	828,042
Sulphate	15,084	893,046	11,840	721,310
Screenings	1,939	35,648	.....	.....
	64,303	3,403,212	57,464	3,239,761
PAPER				
News print	183,414	11,822,383	141,199	9,277,781
Wrapping	1,736	187,309	1,210	134,706
Book (cwts.)	3,924	32,824	3,547	33,913
Writing (cwts.)	184	1,483	689	5,115
All Other	.....	324,577	.....	285,689
		12,368,576		9,737,204

For the first two months of the year the total value of woodpulp and paper exported from Canada amounted to $29,559,830 as compared with $26,425,982 in the corresponding months of 1927, an increase for this year of $3,133,848.

Woodpulp exports for the two months were valued at $6,474,659 and paper exports at $23,085,171 as compared with $6,904,816 and $19,521,166 respectively in the two months 1927.

Figures for the various grades are as follows:

	Two months, 1928		Two months, 1927	
PULP	Tons	$	Tons	$
Mechanical	25,148	650,801	26,115	734,855
Sulphite Bleached	33,722	2,542,759	38,667	2,958,521
Sulphite Unbleached	32,245	1,647,684	32,147	1,782,035
Sulphate	26,417	1,567,504	23,410	1,429,405
Screenings	3,420	65,911	.....	.....
	120,952	6,474,659	120,339	6,904,816
PAPER				
News Print	340,880	22,063,053	283,528	18,572,455
Wrapping	3,097	340,061	2,749	312,826
Book (cwts.)	8,314	67,480	6,008	56,517
Writing (cwts.)	1,197	11,743	1,824	14,585
All Other	.....	602,834	.....	564,787
		23,085,171		19,521,166

Exports of pulp wood in the first two months of the year amounted to 286,838 cords, valued at $2,590,613 compared with 291,272 cords, valued at $2,708,686 exported in the first two months of 1927.

Second Sale of Paper Mill Fails

[FROM OUR REGULAR CORRESPONDENT]

DENVER, Col., March 29, 1928.—The second sale of the Colorado Pulp and Paper Company's properties was attempted by Special Master George W. Beck, on March 28, but no sale was effected, and it is not likely that there will be until the litigation between Joseph Buchhalter and Charles B. Myers is settled. However, it is understood that two groups, one of Denver and the other of Kansas City are ready to bid in the property when the cessation of hostilities is assured.

The mill is going right along, operating for the benefit of the bond holders. The court named the price of the mill at $300,000, all bidders to send a certified check for $25,000, a matter of good faith.

Take Over Dayton Globe Iron Works

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, March 30, 1928.—The Dayton Globe Iron Works owned and conducted for several years by R. R. Dickey, was taken over on March 1 by an Ohio corporation known as the Dayton Globe Iron Works, Inc. H. K. Anderson, who acted as manager of the old concern for Mr. Dickey is president of the new corporation. The other officers are J. E. McAdams, vice president and A. B. Baker, secretary. The board of directors includes C. F. Young, H. J. Thompson, A. H. Kramer, J. E. McAdams and H. K. Anderson.

Philadephia Paper Trade Slightly More Active

Easter and Springtime Requirements Responsible For Bulk of Business Recently Transacted—Keen Competition Experienced For Desirable Fine Paper Orders—All Kinds of Waxed and Tissue Paper Specialties Continue to Move in Heavy Volume

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 2, 1928.—Wholesale dealers and manufacturers are enjoying a much improved demand with the advancing springtime activities. Generally, the paper trade has become slightly more active, but with the bulk of business concentrated on seasonal requirements. While prices have been holding from mill sources there has been some concessions made by the dealers in a few grades that have been well stocked but are lagging. Though the mills are not securing their normal springtime volume of business they have been kept operating on the hand to mouth type of orders that have prevailed ever since the early year. A few mills reported full time schedule but the majority are on from 70 to 90 per cent of capacity operation.

Now that Easter days are near at hand and agricultural requirements for springtime planting keep dealers busy with waxed paper orders, there is a gratifying business for the distributors who feature these specialties. The seasonal demand for tissues, waxed wrapping papers and other florists' requisites has been well maintained along the normal volume, with prices holding steady. Both white and colored waxed papers have been moving in good volume. Shredded waxed papers for packing or nest purposes, too, have been in line with the advancing waxed paper market.

As the brighter days of springtime create a market for publishers' needs in catalogues, booklets, clothing and other mercantile announcements, the fine paper dealers who cater to the wholesale consumers are now enjoying a goodly amount of business in these paper specialties. There has been a tendency on the part of the larger printing and publishing houses to hold off orders for book papers and other grades that are needed for this class of trade pending the turn of industrial activities to a seasonal broadening of operations. It is customary that contracts for wholesale orders of these grades be placed in the late February days. This year, with an uncertain trend in business retarding purchases, the consumers in the publishing field have been holding off their orders until the past week. Uncoated book papers are chiefly being bought in larger volume for wholesale consumption.

As the fine paper market drifts into a spotty demand and distributors are seeking orders with keener interest, there is lively competitive bidding for business. As the wholesalers find a growing field for their efforts, the distributors are confronted with day to day demand of alternating good and quieter trading. Some distributors who have been bidding keenly for book paper orders have been making prices below the market. There has been a lagging demand for book papers and large stocks are accumulated in warehouses. The price concessions are made with a view to moving these laggards and lists sent to the dealers disclose a varied line of fine papers in this class offered at bargain rates.

Social stationery requirements are among the seasonally active stocks. With the winding of the Lenten season there will be the usual return to social gaieties and announcements for the stationers as well as mercantile trades have present prominence in the active list of fine papers. New papeteries are being offered for year round purposes, while imported papers and envelopes are being featured by the wholesalers. The importers are offering a wide range of tissue lining for envelope manufacturers and these now are profusely displayed among papers from France, Germany, Austria and Czechoslovakia. New lamp shade and fancy cover papers are also among the imported novelties in the fine grades.

Paper stock is less active. With low stocks on hand the dealers are not suffering from the lack of consequential orders. Prices are holding, despite the resting period, because of the dearth of supplies.

Wholesale Waste Merchants Banquet

From the leading wholesale waste concerns of the eastern, western and southern states, representatives of that branch of the paper industry gathered at the annual banquet and revelry held at the Hotel Lorraine last Tuesday night, with 300 members joining in the memorable occasion. Yearly these fellowship gatherings have been increasing and with the 1928 banquet there was brought together the largest assembly of trade associates ever held since the various branches of the trade were combined in the Philadelphia Wholesale Waste Mechants Association, under whose auspices these affairs are held. Not only in point of attendance will this 1928 session be memorable for the pinnacle of attendance—for there were many other features in the way of entertainment, a sumptuous board to brighten memories in the retrospect of this year's festive occasion. With 16 acts in the entertainment that followed the dinner and the hearty chorus of songs that interspersed the numbers, the entire evening was given over to comraderie and warmth of fellowship which always has marked these Philadelphia trade assemblies from the ranks of mill men and their allies in the waste industry.

With Thomas A. Kenny presiding, as the president of the Philadelphia Wholesale Waste Merchants Association, and welcoming his associates in the trade, a short but cordial greeting was extended on behalf of the Quaker City members. As toastmaster he introduced Edward Connors, who in turn graced the banquet with a short prayer, and then the evening's revelries were placed in full swing as the 300 trade representatives sat down at the tables grouped around the roof garden of the Lorraine.

As the members filed into the dinner room the reception committee gave a hand of greeting and then passed the visitors to the various tables sponsored by the local firms and where their invited guests were assembled. The reception committee follows: Benjamin Badger, Isaac Beitchman, William Burleigh, Thomas Chadwick, Edward Corner, R. Di Biaso, Geo. A. Di Ienno, Alex Di Santi, Hyman Feldman, Jas. Flannery, Harry Goldman, John Higgins, Louis Infante, William Lemly, Abe Matusow, S. Maxman, M. O. Raiguel, Emil Schwab, S. Spector and P. Sullivan.

Included in the entertainment committee were: Harry M. Baily, of the Heminway Company, chairman; William J. McGarity, of the Penn Paper and Stock Company, and secretary of the local organization, and George French.

The officers and executive committee, who were assembled at the main table where the visiting officials of the New York Association and other out of town guests of honor were seated, were as follows: President Thomas A. Kenny; Vice President Charles J. McNichol, Secretary William J. McGarity and Treasurer William L. Simmons; Executive Committee—George French, H. M. Bailey, Anthony Massington, Samuel G. Ingber and Louis Bantivoglio. Out of town guests were: President Joseph P. Gaccione, of the New York Waste Merchants Association; Charles M. Haskins, secretary of the National Association of Waste Material Dealers; John H. Harrison, of the Agasoti Mill Board Company, Trenton, N. J.; Louis Gottlieb, National Paper Stock Company, Hamilton, Ohio; Robert S. Harris, Fort Orange Paper Company, Castleton, N. Y.; George H. French, Castleton and Overton, Inc., New York; H. R. Coffin, Dexter and Son, Windsor Locks, Conn.; Albert Salomon, Salomon Brothers, New York; G. W. Moore, George W. Millar Company, New York; William Steck, Paper

Mill Supply Company, New York; Lisle Q. Owens, Thomas H. O'Connor Company, Baltimore, Md.; B. K. French, Castleton and Overton, New York; and G. O. Meyer, of the Walker, Goulard, Plehn Company, Inc., New York.

These firms were hosts at the various tables: Benjamin Badger, Beitchman Bros., S. Birkenstein & Son, William Burleigh, Camden Paper Stock Company, Castle and Overton, Thomas Chadwick, John J. Chaulk, Edward Connor, R. D. Di Biaso, George A. Di Ienno, Alex Di Santi, Peter Di Santi, H. Feldman & Co., Goldman Paper Stock Company, Hemingway Company, Infante Brothers, Samuel Ingber Company, International Trading Company, William Lemly, A. Massington, S. Maxman, Daniel I. Murphy, Penn Paper and Stock Company, M. O. Raiguel Company, John Simmons Sons, S. Spector & Co., and P. Sullivan and Son.

New Paper Mill Supply House

Coming to Philadelphia as a guest of the Wholesale Waste Merchants Association, G. O. Meyer, of the New York firm of Walker, Goulard, Plehn Company, Inc., 450 Pearl street, made a round of the local dealers announcing the opening of a paper mill supply department to the company's business. The firm, which is successor to Maurice O'Meara Company, will make this new department an important factor in the business, featuring a complete line of paper, rags and other mill supplies. The paper mills supply department has been placed under management of Mr. Meyer, who is well known to the trade as the former manager of the Parsons Trading Company, having been fifteen years in charge of the New York office. He has a wide circle of friends in the Quaker City as well as other large centers and among the mills.

A. Richard Hartung Entertains Paper Men

A Richard Hartung was chairman of the luncheon meeting of the Philadelphia Paper Trade Association, as host to the fine paper division at the session held in the Bourse Restaurant last Wednesday. A resume of the fine paper trade disclosed that the spring trend among the local houses is upward and that business in so far as prices are concerned is firmer than it was in the early days of the year.

J. Willard Heisley Opens Rag Brokerage Business

J. Willard Heisley who for several years was associated with the Daniel I. Murphy Company, Inc., with offices in the Brown Building, Fourth and Chestnut street, is now engaged in business on his own account as rag stock broker. He has acquired offices in the Wurlitzer Building, 1025 Chestnut street. He will feature imported and domestic rags. He covered the mill trade for the Murphy company and also represented that company in its French Fourdrinier wire department.

John O'Leary Returns From Florida

Having recovered his health, John O'Leary, former manager of the Daniel I. Murphy Company, has returned to the city from a prolonged sojourn in the Southland. He was a guest at the banquet of the Philadelphia Wholesale Waste Merchants Association when he announced that he will shortly again become active in trade circles—his plans to re-enter the industry now being tentatively arranged.

Ralph W. Collins Joins New York Firm

Ralph W. Collins has resigned as a director of the Dill and Collins Company, where he also has been sales manager, the executive position which he will vacate when his resignation is effective within the coming month. Mr. Collins will join the New York house of Marquardt, Blake and Decker, 153 Spring street, the former distribution branch of the Dill and Collins Company before the local mills announced the retirement from selling direct to the consuming trade and catering solely to distributors, a few years ago. He will become sales manager of the New York concern and has acquired a financial interest in the company. The Metropolitan concern is one of the leading distributors of the Dill and Collins Company products. While no definite date has been set for retirement from the Quaker City concern it is understood that he joins the New York distributors within a few weeks. He has been associated with the Quaker City mill for fifteen years and is a nephew of President Grellet Collins, head of the Dill and Collins Company.

Boxboard Production for February

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 2, 1928.—February production of boxboard, based on reports to the Department of Commerce by 91 firms operating 118 plants (reports for earlier months including four concerns now out of business) was 87.6 per cent of capacity, as compared with 84.6 per cent in January and 82.1 per cent in February, 1927. In the following table the capacity data vary according to the normal number of working days in each month:

Year and Month	Operation: Inch hours: Capacity	Operation: Inch hours: Operated	Operation: Per cent of Capacity	Production: Short Tons: Capacity	Production: Short Tons: Output	Production: Per cent of Capacity	New Orders: Short Tons	Unfilled Orders (end of month): Short Tons
1927								
January	9,997,400	6,998,505	70.0	240,175	173,629	72.3	194,285	105,669
February	9,597,504	7,583,477	79.0	230,568	189,273	82.1	183,861	102,005
March	10,797,192	8,627,946	79.9	259,389	219,824	84.7	230,065	114,369
April	10,397,296	7,771,040	74.7	249,782	205,589	82.3	197,435	101,861
May	9,997,400	7,759,515	77.6	240,175	198,710	82.7	192,616	93,248
June	10,397,296	8,200,254	78.9	249,782	213,196	85.4	212,227	94,847
July	9,997,400	7,413,384	74.2	240,175	189,875	79.1	212,434	115,097
August	10,797,192	8,885,602	82.3	259,389	232,723	89.7	227,397	112,763
Sept.	9,997,400	8,675,472	86.8	240,175	225,633	93.9	235,960	120,331
Oct.	10,397,296	8,902,325	85.6	249,782	226,141	90.8	221,548	105,600
Nov.	9,997,400	8,275,202	82.8	240,175	212,319	88.4	183,576	76,471
Dec.	10,397,296	7,443,536	71.6	249,782	186,920	74.8	178,224	74,430
Total (year)	122,768,072	96,536,258	78.6	2,949,349	2,473,832	83.9	2,469,628	.....
1928								
January	9,997,400	*7,800,182	78.0	240,175	*203,146	*84.6	*203,630	*82,446
February	9,997,400	8,075,693	80.8	240,175	210,305	87.6	215,259	86,741

Year and Month	Shipments of boxboard: Short Tons	Stocks of boxboard, end of month: Short Tons	Consumption of waste paper: Capacity: Short Tons	Consumption of waste paper: Consumed: Short Tons	Per cent of Capacity	Stocks of waste paper, end of month: On hand: Short Tons	Stocks of waste paper, end of month: In transit and unshipped purchases: Short Tons
1927							
January	175,528	53,562	232,825	163,337	70.2	163,023	38,062
February	189,032	53,327	223,512	182,322	81.6	158,222	40,602
March	217,876	54,566	251,451	209,730	83.4	155,513	43,789
April	209,944	50,211	242,138	189,942	78.4	147,938	46,314
May	200,282	48,906	232,825	191,427	82.2	149,438	59,289
June	210,320	52,452	242,138	205,537	84.9	151,671	43,807
July	194,131	49,519	232,825	180,822	77.7	151,094	51,520
August	229,719	52,283	251,451	227,430	90.4	130,503	72,087
September	228,393	43,115	232,825	216,101	92.8	127,649	53,875
October	228,222	41,863	242,138	220,974	91.3	128,443	65,008
November	212,375	41,317	232,825	202,646	87.0	133,184	52,161
December	181,400	42,610	242,138	177,329	73.2	145,549	34,512
Total (year)	2,477,222	.....	2,859,091	2,367,597	82.8	.....	.....
1928							
January	*196,275	*49,172	232,825	*188,521	*81.0	*157,185	62,791
February	210,053	49,472	232,825	193,057	82.9	152,713	61,078

* Revised.

To Confer on Coated Abrasive Products

A general conference of consumers, technical experts, distributors, and manufacturers interested in coated abrasive products will be held at the Department of Commerce, Washington, D. C., April 11, 1928, to consider drafting a simplified practice recommendation for this commodity, according to the Division of Simplified Practice.

For a number of years the quantity of sizes and varieties of abrasive paper and cloth has been increasing at a rapid rate. At present there are many thousands of varieties being carried and catalogued by the industry. It has been estimated that the annual output of the industry amounts to more than $16,000,000.

The Abrasive Paper and Clothing Manufacturers Exchange has submitted a tentative proposal for eliminating the superfluous and seldom-called-for sizes and varieties of coated abrasive products, with the request that the Division of Simplified Practice call a general conference of all interests to consider the adoption of a simplified practice recommendation.

Wisconsin Commercial Forestry Conference

Public Sentiment Created in Favor of Saving Remaining Wisconsin Forests—F. J. Sensenbrenner, President of Kimberly-Clark Co., Discusses Future Pulp Wood Supply at Length —Blames Lack of Foresight for Shifting of News Print Industry to Canada

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 2, 1928.—Encouragement for the paper industry with respect to its future pulp wood supply was voiced in the Wisconsin Commercial Forestry Conference which was held on Wednesday and Thursday of this week at Milwaukee, Wis. Addresses made by F. J. Sensenbrenner, president of the Kimberly-Clark Company, of Neenah, Wis., and D. C. Everest, of Rothschild, Wis., president of the American Pulp and Paper Association, touched particularly on this phase of the subject, but several other prominent speakers made reference to it also.

This conference brought together the most influential men in the state of Wisconsin and it has created a public sentiment such as never was known before in favor of saving the remaining Wisconsin forests. With a law passed at the last session of the state legislature which takes away the menace of prohibitive and unjust taxation of growing timber, the paper, lumber and other wood working interests have seen their opportunity and have begun a concerted campaign to replant the wasted lands so that new timber will be available when needed.

A plain lack of foresight, said Mr. Sensenbrenner, is responsible for the shifting of the news print industry to Canada. If forty years ago, the nation had adopted a broad and abundantly financed policy of conservation and reforestation, much of the shifting could have been deferred. Canadian production gradually has increased until in 1926 it exceeded that of the United States, and this lead grew larger in 1927. At the same time, he said, United States production decreased.

"When mills now in course of construction in Canada come into production," Mr. Sensenbrenner continued, "Canada's lead will be substantially increased and the situation of the United States mills will become increasingly serious, especially such mills, which, through lack of capital or other causes, have not protected their future by investments in large stands of timber."

Forest Fire Protection a Necessity

Forest fire protection as a necessity to the program also was emphasized by the Neenah manufacturer. He explained organization of the "Wales Forest Protective Association" to protect a large stand of timber owned by the Kimberly-Clark Company in Minnesota. Several serious fires led to this move and the annual loss from this source has decreased year by year until now it amounts to practically nothing. It has been necessary to patrol an area of 700,000 acres despite the fact that members of the association owned only about 20 per cent of this acreage. In 1921 a total of 8,000 acres was burned over, with a loss of $56,000. Protection against fires has prevented a recurrence of such losses.

Serving as general chairman of the conference, D. C. Everest said in his opening remarks that in addition to the forest tax law for relief from taxation on growing timber there also must be legislation to relieve taxation on mature timber. It is more important to husband the present supply of timber, he said, than to depend largely upon new growth.

W. A. Duffy, state commissioner of agriculture, mentioned in his speech the possibility that with the aid of science forest growth could be brought about that would produce at least pulp wood in from 25 to 35 years on sites best adapted to this purpose. It is estimated that the present supply would be exhausted by that time at the present rate of cutting.

Increased Use of Popple Recommended

Solutions to the present situation were recommended by Dr. Raphael Zon, director of the Lake States Forest Experiment Station, at St. Paul, Minn. In addition to the fire protection and selective cutting he mentioned "increasing the use of popple which is entirely suitable for paper making, especially for book paper." He said conversion gradually should be accomplished of much of the popple land to forests of white pine and spruce by underplanting the present aspen stands with the more valuable species. The state also should plant to forests the 7,000,000 acres of burned over or ruined land now existing in Wisconsin.

It was pointed out by George F. Kull, secretary of the Wisconsin Manufacturers Association, that Wisconsin's original stand of timber covered 30,080,999 acres but has been reduced to 17,800,000 acres. Wisconsin has planted new forests on only 5,500 acres, as compared to 181,642 in Minnesota. Many other men of prominence were on the program, all agreeing that reforestation must be undertaken on a big scale in order to save the state's industries.

Use of Kraft in Insulation

The extent to which kraft paper made by the Mosinee Paper Mills Company, of Mosinee, Wis., is used in electrical insulation was explained by J. D. Line, of the Westinghouse Electric and Manufacturing Company of East Pittsburgh, in an address at the paper making class of the vocational school at Wausau, Wis.

Mr. Line said that the major part of the insulation on a huge 40,000 k.w. generator installed for a Philadelphia power company was kraft paper from the Mosinee mill. The largest condenser bushing terminal in the world, made by Westinghouse, and producing current of 1,000,000 volts, is insulated entirely with Mosinee kraft, he said.

Members of the class also learned considerable about the operation of paper machines through an address by F. C. Boyce, superintendent of the Wausau Paper Mills Company, of Brokaw, Wis. He traced the entire process and analyzed the causes of many of the more common troubles on the machines.

George D. Nau Passes On

Announcement is made of the death on March 27 of George D. Nau, treasurer of the Hoberg Paper and Fibre Company, of Green Bay, Wis. He also was interested in the Northern Paper Mills, and the Green Bay Paper and Fibre Company, and was the founder of the Nau Tug Line, which brought pulp wood to the Green Bay paper mills. The decedent also was president of the Citizens National Bank of Green Bay, up to the time of its consolidation with the Kellogg National Bank. He has been a director of the latter since that time. Death came suddenly at the age of 65 years. Mr. Nau is survived by his widow and one grandson.

Miscellaneous Trade News

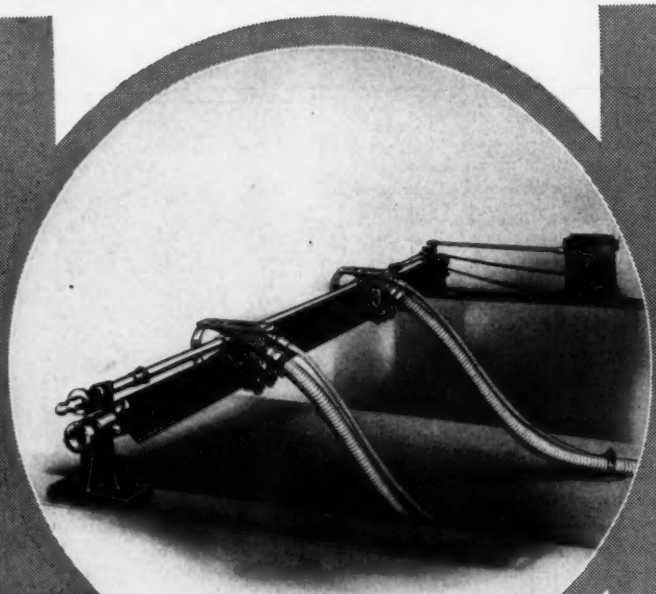
Nearly 300 foremen were awarded certificates at the closing banquet of the Foremen's Safety School last week at Green Bay, Wis. Those who had attended regularly and completed the course were given this recognition. The principal speaker at the banquet was D. D. Fennell, safety engineer, of Chicago.

Several Wisconsin paper mills were visited last week by sixteen senior chemical engineering students of the University of Minnesota. They are making a tour of industrial plants in order to gain practical knowledge, according to an annual custom of the university. Dr. C. A. Mann and Dr. G. H. Montellon, of the faculty, were in charge of the tour.

George W. Mead, Mayor of Wisconsin Rapids, Wis., and president of the Consolidated Water Power and Paper Company, has resumed his duties after a six weeks' stay in Florida. He was unanimously re-elected Mayor at the spring election.

Charles P. Schwartz, an employee of the Marinette and Menominee Paper Company, of Marinette, Wis., died this week. He was with the company for twenty years.

Every Felt Needs To Be Conditioned



BIRD MACHINERY

Your felts are always the same, always clean, soft and porous over their entire surface as long as they're on the machine, when you have Vickery Felt Conditioners.

Think what a great operating advantage this is.

BIRD MACHINE COMPANY
South Walpole • • Massachusetts

Vickery Felt Conditioner

1824

Paper Market Exhibits Improvement in Chicago

Request for Various Grades of Paper at Present Time Compares Favorably With Demand Experienced in Corresponding Period Last Year—Book Paper Moving in Higher Volume Than of Late—Fine Paper and News Print Markets in Sound Position

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., April 2, 1928—A snow storm and plenty of cold weather, in contrast to the warm spring like days of last week, had a very slight effect on business in the Chicago paper market, although the effect was largely one of temperament. As a rule paper lines in general are about as good as at this time one year ago and in a number of cases the outlook is a great deal brighter. The tone of the market is also much improved and an optimistic outlook prevails.

The volume of book paper is running higher and this market is in an improved condition. Reports have it that there is also a stimulus in the kraft market, a stimulus confidently expected for some time. Ground woods are about the same. Coated papers show some improvement, with one mill reported as about five weeks behind in filling orders. The better grades of fine papers are holding their own, while news print continues to hold an enviable place, taking all lines in general. Despite reported unfavorable conditions in business, advertisers are buying a lot of space and the resultant demand on news print is taking up a heavy production. The board market is reported in good shape, with box board in especially good condition.

Ira L. Myers Joins Dietrich Organization

Ira L. Myers, formerly associated with the Allen Paper Corporation, is now acting as manager of sales for the D. W. Dietrich Paper Company, with offices at 228 North LaSalle street, Chicago. Mr. Myers was with the Allen Paper Corporation for a number of years and prior to that was associated with the Pilcher-Hamilton Paper Company. He is well known in the paper field.

Mr. Myers again becomes associated with D. W. Dietrich, who was also formerly with the Allen corporation. Mr. Dietrich formed his own organization in December and since that time has been making very favorable progress. The organization buys and sells nearly all grades of paper and, with the coming of Mr. Myers as manager of sales, a number of new lines have been added. At present the line of the D. W. Dietrich Paper Company includes the following: baak papers, all grades of bonds, manilas, krafts, news print, all ground wood papers, board and a representative and attartcive line of paper specialties.

Frank Floyd in Chicago

Frank Floyd, recently elected secretary of the National Paper Trade Association, was in Chicago this week settling up the affairs of the local office in the Conway Building. With the moving of the Chicago representation, formerly under the direction of N. A. Schoenbucher, the direct management of the National Paper Trade Association will center in New York City.

S. C. Knode Visits Chicago Salesmen

S. C. Knode, vice president of the New York Division of the Salesmen's Association of the Paper Trade industry, has been in Chicago and the middle western states for the past two weeks and has taken this opportunity to make a number of calls on representatives of the Chicago division. Mr. Knode has been present at the last two Monday meetings of the Chicago organization. He reported a number of the recent activities of the New York organization. In his travels around Chicago and in the Middle West Mr. Knode finds that interest in the Salesmen's Association of the Paper Industry is rapidly increasing.

News of the Industry

The Allen Paper Corporation is now in the process of liquidation, according to reports. The organization has had its corporate name for the past three years and prior to that time was known as the A. C. Allen Paper Company under which name it operated effectively for ten years.

Strathmore Town News No. 5, the interesting product of the Strathmore Paper Company, has recently reached the desks of advertising men and printers of Chicago. The little book suggests excellent ideas for covers, combinations of various colored papers, interesting layouts, correct color schemes and plates that print well on various papers. Through its interesting portrayals the book also provides an example of a small part of the representative Strathmore lines including Cockatoo, Alexandria Japan, Artlaid and Charcoal book, all being designated by captions on each sheet. Weights and sizes are also included. The Strathmore product is an excellent example of the providing of useful information while advertising a product.

Bill H. R. 12030, relative to the postal rates, does not meet with the unanimous approval of Chicago direct mail users, according to information received this week. The bill has been favorably reported to the House by the House Post Office Committee but it does not prove satisfactory to the paper trade as a whole.

As it relates to third and fourth class mail it will not greatly improve the situation. The provision for returning to the 1924 rate of one cent on private mailing cards is all right. The adoption of the private reply card and envelope providing for a return card and envelope without postage affixed would be a great step forward, inasmuch as it removes the necessity of the prospective customer for affixing a stamp. What the direct mail men, printers paper men and all seem to want is a rate on third and fourth class matter put back on the 1924 basis which on third class would be one cent for two ounces, or its equivalent, eight cents per pound; and on fourth class the old 1924 schedule without any service charge attached.

Among visitors to Chicago paper houses this week were John Powell, of the Rex Paper Company; Clark Everest, of the Marathon Paper Company, and Mr. Pierce, of the Niagara Envelope Company, of Buffalo, New York.

James Farrington Dead

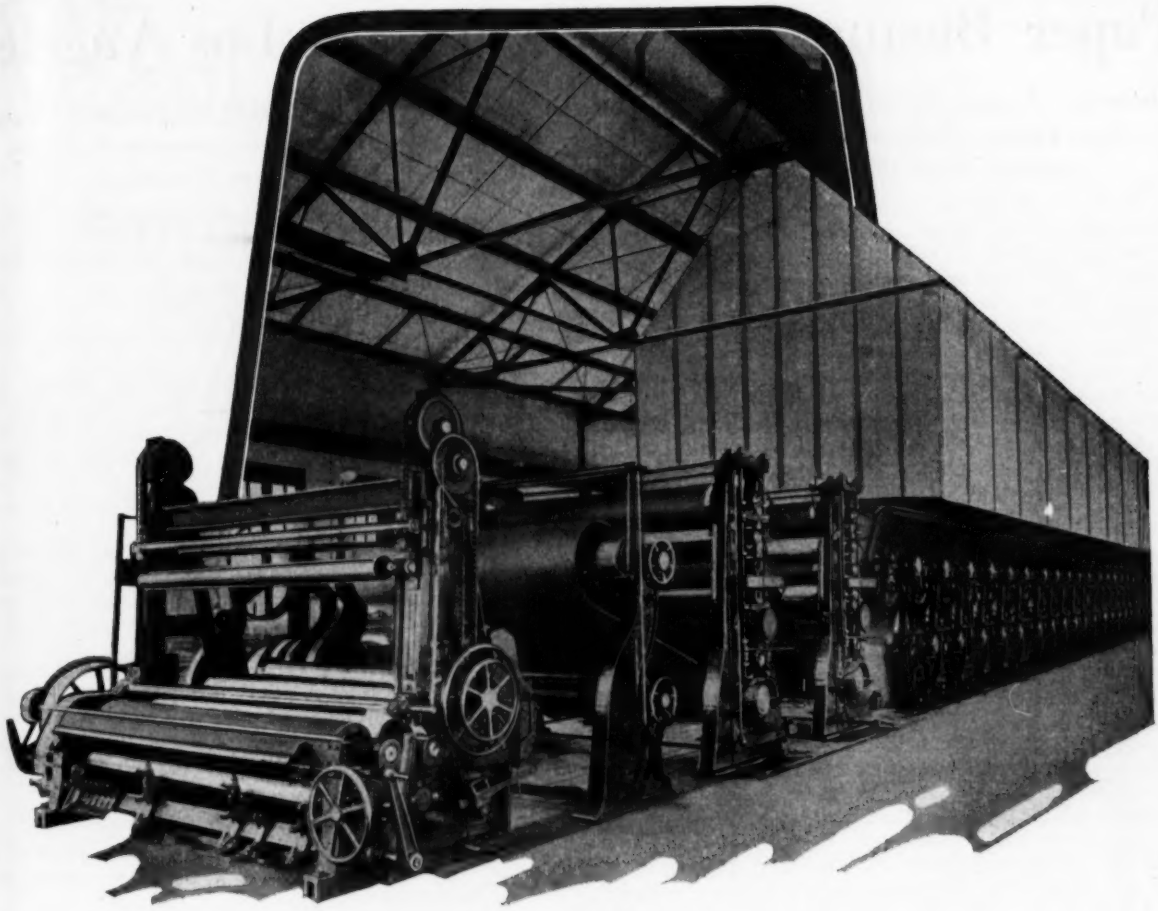
PROVIDENCE, R. I., April 2, 1928.—James Farrington, who has been a member of the organization of the Textile Finishing Machinery Company for a great many years and made many friends in the trade, died early Thursday morning, March 22.

Mr. Farrington's early life was all spent in and about Providence and he took a position in his early life with the Providence Dyeing, Bleaching and Calendering Company, and was their superintendent for quite a few years. He spent a few years in Philadelphia working for the Quaker City Dye Works as overseer of finishing. He for sixteen years, with the exception of an interruption of about one year, worked as a salesman for the Textile-Finishing Machinery Company.

He was a thirty-second degree Mason, a member of the Shrine Band and otherwise prominent in the city in which he made his home.

Mr. Farrington was born in England, January 14, 1875, and came to the United States at the age of seven years. He was educated at East Greenwich Academy and Brown University. He died in his fifty-fourth year after an illness of about three months and was buried Saturday afternoon, March 24, from the Remington Funeral Home, Broad street, Providence.

Mr. Farrington is survived by his wife, Mrs. Sarah A. Farrington, and one son, William U. Farrington.



Five Repeat Orders for Paper Machines

Twenty-five years ago the Hinde & Dauch Paper Co. purchased their first paper machine from us, and since that time they have purchased nothing but Downingtown Machines. They now operate six paper machines built by Downingtown, which is certainly undeniable evidence of satisfaction.

The illustration shows the Finishing End of the new machine which was recently installed in their Trenton, Ontario mill. This machine, a Keystone Removable, Adjustable, Shakeable Fourdrinier makes kraft paper and light weight specialties. It has a 126" wire, 75' long, and is equipped with a Kilberry Suction Couch and Suction Press Roll.

When in need of a Fourdrinier or Cylinder Machine remember that a successful concern like Hinde & Dauch would never purchase six paper machines from us, unless they had some particularly good reasons.

Our Products Meet Our Promises

KEYSTONE Fourdrinier

Downingtown Mfg Co. Downingtown Pa.

Paper Business Rather Quiet in Los Angeles

Recession Apparently Marks Every Department of Industry, With Notable Exception of Paper Box Trade—Hollywood Box Corp. Making Remarkable Strides—Expansion of Schumacher Wall Board Plant Designed to Cut Operating Expenses to Minimum

[FROM OUR REGULAR CORRESPONDENT]

LOS ANGELES, Cal., March 30, 1928—The volume of business in the paper industry is not what the jobbers would call encouraging. This recession seems to mark every department of the industry with the exception of the paper box trade.

Just what seems to be the cause of this rather quiet tone in the market is difficult to ascertain. About the best explanation from anyone is that it is a reflection of all business, which is somewhat slack from "a presidential year."

However, there are several good signs in the trade in Southern California which show that the industry is for from "down and out."

Growth of Hollywood Box Corp.

At the recent meeting of the board of directors of the Hollywood Box Corporation, C. B. Kerr, president, revealed figures which showed the remarkable growth of this corporation.

Although established only two years ago, the Hollywood Box Corporation had a $500,000 volume of business for its second fiscal year.

It has been the largest single industrial firm of its kind in Hollywood and ranks second only to the motion picture companies in point of total output for 1927 among industrial concerns in the movie capital.

The company occupies its own modern daylight plant with 60,000 square feet of floor space, plus $150,000 worth of modern equipment and 147 employes. The annual payroll is approximately $200,000.

Officers of the concern are C. E. Toberman, chairman of the board of directors; C. B. Kerr, president and general manager; H. A. Dunlop, vice-president; Parker V. Foster, secretary, and Fred J. Smith, treasurer.

Schumacher Wall Board Development

Another hopeful indication of trade on the Coast is the progress shown by the Schumacher Wall Board Corporation. National distribution of products of the corporation will be the next step in the expansion program of the company, following the recent opening of the new factory, according to A. R. Moylan.

Hitherto the factory capacity of the company has been inadequate to supply the current demand for wall board and associated products, but with the new plant in full operation, production is expected to increase more than 75 per cent. Monthly output will be about 7,000,000 square feet, Mr. Moylan estimates.

The cost of the new plant was approximately $500,000 and was designed to cut operating expenses to the minimum. At present the sales of the corporation's product are handled through 1650 dealers in every western state. In addition products were distributed to a number of foreign countries. With the new production eastern markets will be exploited.

During 16 years of operation, sales of the company have increased over each previous year, and at no time in its history has the company had an unprofitable year.

Los Angeles Paper Mfg. Co. Changes

Robert E. L. Brown was elected president and treasurer of the Los Angeles Paper Manufacturing Company at a special meeting called to fill the vacancy left by the death of his father, Joseph Brown, Sr., founder and former president of the company, who was killed in a traffic accident several weeks ago.

Joseph Brown, Jr., as vice-president, was made general manager; Harold D. Brown was elected secretary, and N. L. Brinker retains his position as director of sales.

R. E. L. Brown, who formerly occupied the position of secretary-treasurer, said the general operation and policies of the company would be carried out along the lines established and maintained by his father from its inception, more than 27 years ago.

"We have almost literally grown up with this business," said Mr. Brown. "It is not a case of a new management stepping in, for we have been actively identified with the administrative affairs of the company for many years. As fast as each of us qalified for positions of greater responsibility we were moved into them and thus have been actively in charge of the affairs of the company for some time.

"Father was a strong advocate of square-dealing. He built his business on a quality foundation. As a result, our products established a reputation that has steadily increased the demand and made repeated plant additions necessary and rapid extensions possible.

"Equipped with the best machinery obtainable for the manufacture of our products, our plant has steadily grown until it now represents an investment of more than $1,000,000.

"Our products are now distributed throughout the Pacific coast region and are being exported in constantly increasing quantities to Hawaii and the Orient."

Pioneer Paper Products Displayed

Products of the Pioneer Paper Company were displayed in the windows of the Seaboard National Bank in Los Angeles and attracted much attention.

Photographic illustrations showed the various stages which the raw material passes through before it emerges as the finished products.

News of the Trade

E. A. Durand, sales manager of the Blake, Moffit & Towne Company, has left for his vacation in the East. He intends to be gone for several weeks.

Much interest is being shown in plans for the coming convention of the Pacific States Trade Association to be held at Del Monte May 10 to 12.

The manufacturers are arranging a golf tournament to be held during the convention meeting and many in the trade are shining up their clubs for the occasion.

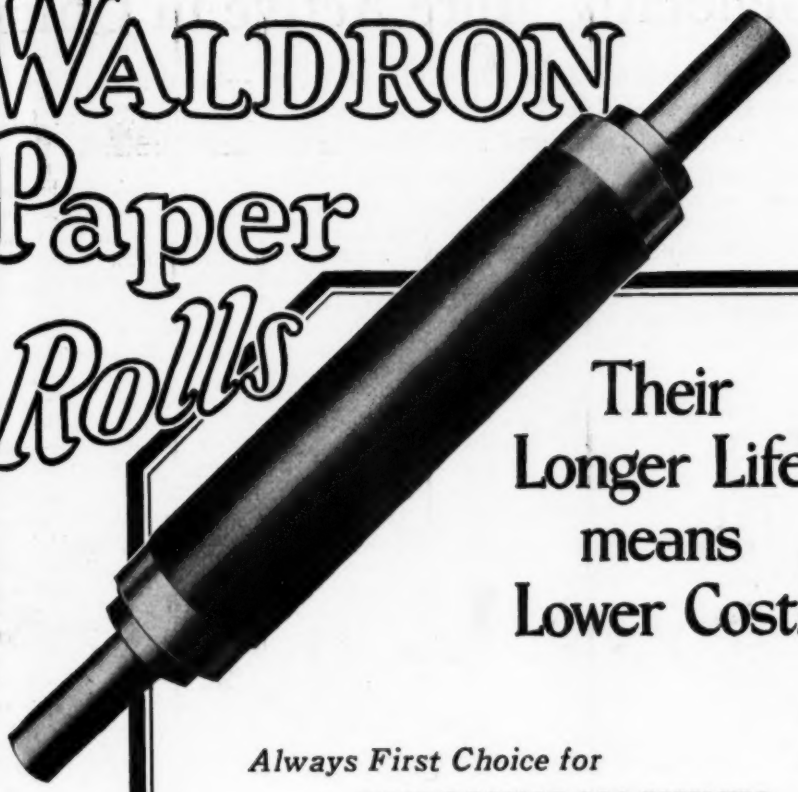
Recent Developments in Steam Generation

The Combustion Engineering Company, of 200 Madison Avenue, New York, has just published an attractively printed reprint of an address entitled "Recent Developments in Steam Generation", which was presented before the Engineers' Society of Western Pennsylvania at Pittsburgh on January 17 last by George T. Ladd, president of the Ladd Water Tube Boiler Company.

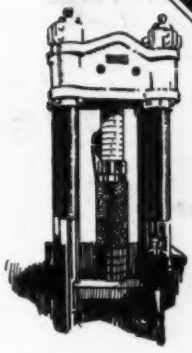
This paper summarizes the important developments that have o curred in the field of steam generation during the past decade and discusses present trends. Its scope is extended to include such developments as low-temperature carbonization of coal and dry quenching of coke. This is an authoritative treatise which will undoubtedly be of interest to all engineers whose work is related in any way to power plant operation.

Copies of the treatise will be sent to those interested upon request to the Combustion Engineering Company.

WALDRON Paper Rolls



Their Longer Life means Lower Cost!



One of the huge presses capable of exerting 1500 tons pressure—used in compressing Waldron Paper Rolls.

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GLASSINE CALENDERS

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HEATED ROLL EMBOSSING

HAVE YOU AN INSTRUCTION SHEET AS TO HOW A PAPER ROLL SHOULD BE RUN IN? IF YOU WRITE—A COPY WILL BE SENT TO YOU

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NEW YORK

Paper Mills Generally More Active in Ontario

Orders for Several Months Ahead Keeping Book Paper Plants Active—Bond and Ledger Manufacturers Enjoying Good Business—Board Mills Operating At Around 75 Per Cent Capacity—Tissues, Toilets, Crepes and Specialties in Excellent Demand

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, April 2, 1928—The first quarter of the year for the Ontario paper wholesalers has closed with a satisfactory volume of business, although at the moment orders are not coming in as freely as the trade would like to see. In the bond, writing and ledger paper department the market is still very badly upset by the price war which developed early this month and continues with unwelcome results for the paper merchant and cheap paper for the printer and other consumer.

It had been hoped that the price-cutting evil would have been curbed ere this, but certain firms are still selling ream lots at ton prices, less ten per cent. and there appears no immediate prospect of remedying the matter. One large Toronto wholesaler declared that his profits on turnover during March were reduced by about forty per cent. as the result of the war and other firms have had similar experiences. However most of the dealers feel that the present situation is only a passing phase and that the price-cutting paper sellers will soon see the folly of their ways and return to normal conditions again.

In the meantime, papers unaffected by the price-war are enjoying a fair demand, and barring the disability just mentioned the wholesale paper trade in Ontario may be said to be in a satisfactory state. There is a tendency to buy in larger quantities now and carload lots are not unknown, particularly in the coarse paper section, which had been quiet for some time, but which is now experiencing better business. There is a fair call for paper bags, and a particularly good demand for flour sacks. Wrappings are selling well and stationery lines are beginning to get active after a rather quiet period.

The mill trade in practically all lines of paper and board is quite active, with the book paper mills having orders ahead well into the summer months. Bonds and ledger manufacturing plants are enjoying good business both domestically and for export, while the light weight paper market is keeping up well, with an excellent demand for all lines of tissues, toilets, crepes and specialties. Mills manufacturing greaseproof and glassine are particularly active, although the waxing plants are only doing a moderate amount of business. Board mills continue very active and are operating at around 75 per cent. capacity and paper box manufacturing plants are sending in generous requisitions. With the advance of spring the paper converting trade is picking up, there being a very good call for envelopes and manufactured stationery lines generally. Temporary falling off in the demand for rag and paper stocks has been replaced by a satisfactory volume of business for the dealers, mills now buying in fair volume. Dealers report that they have been busy this week filling a lot of rush orders. Collections of both rag and paper stock are good and there is no surplus of supply over demand. Generally speaking the market for old rags and paper is in excellent shape, with a gradually strengthening tendency to the situation. The pulp market is still weak, with paper mills buying below the market prices. It is felt, however, that if the labor trouble in Sweden improves, there will be a resultant improvement in the market for pulp in the United States and also in the Canadian market. In the meantime imports to this country and the States are pretty well cut off.

Pulpwood Policy Under Fire

Calling on the Legislature to appoint a special committee or commission independent of any political party, to make a survey of the pulp wood and timber areas of Ontario to determine what area had been sold and remained undeveloped, what area remained unsold, and what area had been disposed of which should not have been sold, the Liberal leader in the House this week moved his resolution of censure upon the Department of Lands and Forests, and challenged the Government to give an explanation of the course pursued in the disposal of the timber wealth of the province.

The resolution did not come to a vote, being withdrawn by Mr. Sinclair, following the defence put up by the Hon. Mr. Finlayson, the Minister of Lands and Forests, who freely admitted that the tenders called recently on the sale of limits had been, in fact, nothing but a matter of form, and that they had already been earmarked for Shevlin-Clarke, Backus, and other interests, before they were advertised. This information, he pointed out, was a well-known fact in the pulp wood and lumbering industry, where everyone knew that they could not if they would bid against them. The policy of the Government was to sell no timber limits in the province except in cases where companies could prove that they would have to shut down unless material was given for them to work on. In this case the sales were necessary to keep Northern Ontario towns on the map.

The Liberal leader attacked the Government for not having cancelled contracts for the development of timber limits made by the Drury Government with Backus, the Spruce Falls interests, and others, which had not been strictly lived up to, declaring that the limits could be sold now to higher bidders. The Minister replied that these companies had built up the lumbering industries of the province, and that it would be beneath the dignity of the Department to cancel contracts simply because the markets were bad. "If you are going to make money," he announced, "you will have to get someone else to run this department. We say the paper industry is overdone, and we are not going to force these people under the circumstances."

Paper Draw-Back Restrictions

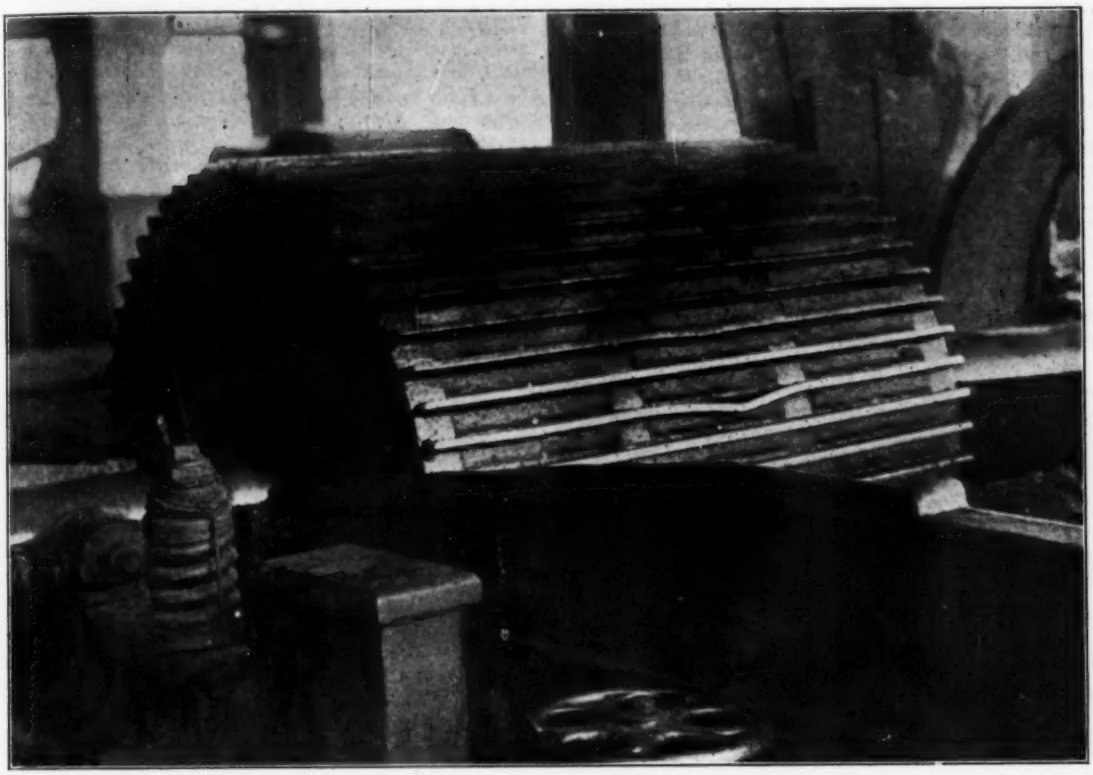
In the House of Commons this week the Hon. James A. Robb, Minister of Finance, submitted an amendment, which was adopted, restricting application of the item which provides in the tariff for 80 per cent. drawback on paper for magazines. The restriction reads: "No drawback shall be paid under this item on trade journals, supplements of newspapers, publications devoted to the private interests of the publishers, or association publication devoted to the enterprise of the publisher, but not to exclude publications devoted primarily to agriculture."

John F. Ellis Left Large Estate

An annuity of $10,000 a year was left to Mrs. Mar E. Ellis, widow of the late John F. Ellis, president of the Barber-Ellis Company, Toronto, who died recently, and whose will has just been probated. Three sons, Fitzallen M., Charles G., and Edward H. Ellis, receive a third each of the income of the estate over $10,000 until the death of Mrs. Ellis, when they share the estate equally. The bulk of the estate is made up of stock in the Barber-Ellis Company, valued at $252,855, and two houses valued at $28,000 and $20,000 respectively. The will was made November 7, 1919. Mrs. Ellis also receives a cabinet of silverware presented to the late Mr. Ellis by the Toronto Board of Trade of which he was former president.

Hinde & Dauch in Winnipeg

Announcement was made in Toronto this week by E. I. Hunt, of the head office here of Hinde & Dauch, that construction of a combination paper mill and box factory, the ultimate cost of



SIXTEEN YEARS AGO

In 1912 we built four beating engines for a mill making high grade sulphite specialties. They report to us now that the original roll filling is still doing good work after 16 years of continual service without repairs of any kind.

Another mill also has just called our attention to one of their Dilts bandless rolls filled with Dilts special alloy steel, heat-treated fly bars, and which has run over ten years on their kraft liner stock without repairs. It is conservatively estimated that this roll has prepared 12,000 tons of liner stock.

It certainly pays to use good bandless rolls and good fly bars.

"Your paper is made in your beaters."

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

which will be $1,000,000, would commence in Winnipeg, Man., some time during the present year. The Hinde & Dauch Company this year biult a board mill at Trenton, Ont., which is now in operation, and the company's proposed Winnipeg plant will be a duplication of the Ontario factory, but they will also manufacture in the western metropolis paper and corrugated boxes.

News and Jottings of the Trade

C. E. French, of the Toronto office of the Howard Smith Paper Mills, Ltd., has arrived back after an enjoyable trip to the West Indies and the Caribbean Sea. In the course of his journeyings Mr. French was enabled to call on a number of the firm's export customers and to create several new accounts. The Howard Smith Paper Mills are extensive advertisers and Mr. French said that there was every evidence in the West Indies and other sections he visited that the firm's publicity is being well directed and with good results from a business standpoint.

C. Howard Smith, president of the Howard Smith Paper Mills, Ltd., was in Toronto a few days ago. Mr. Smith had just recently returned from a stay of some months in Switzerland and his friends were pleased to note that he was very much improved in health.

The many friends of Charles F. Mansell, of the Toronto sales office of the Howard Smith Paper Mills, Ltd., regretted his indisposition last week which took him off his regular beat among the Toronto paper merchants.

Miss Madeline V. Lynch, who for some years was private secretary to the late Lieut.-Col. Thomas Gibson, vice-president of the Spanish River Pulp and Paper Mills, Ltd., and general counsel for the Lake Superior Corporation, has resigned from her position with the Spanish River head office in Toronto and following a stay in California will assume her new duties as secretary to the president of the Roger Miller Construction Company, Toronto. Miss Lynch's work in the Toronto office of Spanish River brought her into close touch with the directors and executives of the company, by whom she was held in the highest esteem.

News of the Boston Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 3, 1928.—The luncheon meeting of the Fine Paper Division of the New England Paper Merchants Association was held at the Chamber of Commerce, Tuesday, March 27, with a good attendance. Subjects of general interest to the members were discussed. Arthur E. Ham, vice-president of the association, presided. A special meeting of the Fine Paper Division is to be held in a few days, but the exact date has not been decided upon.

Hubert L. Carter, president of the Carter Rice & Co. Corp., has gone to North Carolina for a week's vacation.

A. W. Blackman, president of the D. F. Munroe Company, has returned from Bermuda.

A. P. Mitchell, of the Warren Manufacturing Company, New York City, and W. R. Ingersoll, of the Dill & Collins Paper Company, Philadelphia, called on the trade last week.

Pulp Testing Chemists Approved

The Joint Committee on Approved Pulp Testing Chemists for the Paper Industry of the United States, with headquarters at 18 East 41st street, New York, announces that the following chemists have been accepted by the committee as Approved Paper Mill Pulp Testing Chemists, and are now listed as such:

Harry C. Bradford, Rex Paper Company, Kalamazoo, Mich., effective March 15, 1928.

Dr. Herman L. Joachim, Central Paper Company, Muskegon, Mich., effective March 29, 1928.

William E. Breitenbach, Rainier Pulp and Paper Company, Shelton, Wash., effective March 29, 1928.

E. F. Whittington, Standard Paper Company, Kalamazoo, Mich., effective March 30, 1928.

Boston Paper Market Fairly Steady

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 2, 1928.—March as a whole has been an active month among paper wholesalers here. With a few exceptions, the amount of orders has been increasing. Prices have been firmly maintained at the same levels that have prevailed for some time. Animal sizing for fine writing papers is firm and advancing, a factor which makes for strength in those lines. Some houses have had all the business they could handle in fine papers, and others have received at least a moderate volume of orders.

The demand for wrapping paper has improved generally, although some say that the month does not show the volume of business as that of a year ago. Jobbers look forward to a substantial business in April and May

In box board, prices are holding steady, although buying for immediate requirements only prevails. Manufacturers are making strenuous efforts to hold prices, although box makers are attempting to bear the market. The volume of business continues fair.

The opinion is expressed that it is shortsighted policy to cut prices because it is a "toboggan slide" once reductions are started. Furthermore, it is stated that cutting prices of board tends to work to the disadvantage of the box manufacturer in the long run, because customers are apt to learn that concessions have been made and in turn ask for concessions.

Reports of the market for old paper and rags vary, but in some quarters of the market there is an improvement, at least in a number of grades. On the other hand, a few have declined slightly. One house has found a good outlet for several kinds of stock. Old papers are unchanged in price, except that No. 1 heavy books have advanced from 1.55 to 1.65 to 1.75 to 1.85, the second rise within two weeks.

In bagging several advances have taken place. Foreign gunny No. 1 is quotable at 1.75, compared with 1.40 to 1.50 a week ago and domestic gunny No. 1 at 1.65 to 1.75, compared with a previous range of 1.50 to 1.60. Scrap burlaps are quotable at 1.50 to 1.62½, against 1.37½ to 1.50 and heavy wool tares at 1.65, compared with 1.50. New burlap cuttings remain at the same values, 2.25 to 2.37½.

Foreign manila rope and strings, however, have declined from 2.75 to 2.62½ and domestic manila rope and strings from 3.50 to 3.00. Mixed strings continue at .90 to 1.00.

New and old domestic rags are unquotably changed. The situation in these commodities is practically the same. In foreign rags, Boston dealers are selling dark cottons at 1.50, the same price which was current a week ago, and realizing a profit at this figure, although it is rather close. Some are asking 1.55 for dark cottons.

New No. 1 shirt cuttings have declined from 11.00 to 11.50 to 10.50 to 11.00, but Dutch blues have advanced from 2.00 to 2.00 to 2.25. Lace curtains are quotable at 5.25, compared with 5.00 to 5.25 and old fustians from 1.80 to 1.90. New checks and blues remain at 4.50 to 4.65. Imports of foreign rags have been light on account of the slack demand.

Test Florida Wood for Paper Pulp

[FROM OUR REGULAR CORRESPONDENT]

TALLAHASSEE, Fla., March 30, 1928.—Various woods grown in Florida have been tested for paper pulp by the Forest Products Laboratory of Madison, Wis., according to information being compiled by the State Industrial Survey workers.

The woods included loblolly, long leaf, pond, black, short leaf and slash pine, and the tests were made from time to time.

Other woods that have been tested are cypress, cottonwood, yellow poplar, black gum, red gum, sweet gum, mangrove and cabbage palmetto.

In the course of the next few months other tests will be made on trees that can grow freely in the southern section of the state, but which are not native to Florida, the survey says.

Our Business Is Founded On Conservation

NEWPORT and ACME WOOD ROSIN are valuable commodities conserved from waste.

Without quality the lowly source of NEWPORT or ACME WOOD ROSIN would be of no consequence.

Quality means dependable purity, cleanliness and chemical uniformity.

Visualize the thousands of carloads of NEWPORT and ACME WOOD ROSIN sold by us all over the world as further evidence of economy in price.

CONSERVATION is one thing we sell when marketing NEWPORT or ACME WOOD ROSIN, and conservation is a feature that many of our trade seem pleased to consider when granting us the favor of their patronage.

QUALITY OF PRODUCT however is paramount to conservation. Therefore quality becomes an interesting part of our discussion, for on the subject of quality of NEWPORT or ACME WOOD ROSIN, we have much to say that is convincingly correct.

Then next to conservation and quality of product comes another absorbing topic, PRICE. Here again we hold interest, since with guaranteed quality we are in a position to show ECONOMY IN PRICE of NEWPORT or ACME WOOD ROSIN.

The use of these Uniform Rosins improves the possibility for Uniform Size

GENERAL NAVAL STORES COMPANY

Incorporated

New York, Cincinnati, Chicago, New Orleans, Philadelphia, Minneapolis

The oldest and largest organization in the world exclusively engaged in selling "Steam Distilled Wood Turpentines," Pine Oil and Wood Rosin

Address any Company Office when needing Rosin Research Aid Laboratories at Cincinnati, O., Pensacola, Fla., De Quincy, La.

New York Trade Jottings

Ronald G. Macdonald, secretary of the Technical Association of the Pulp and Paper Industry, has been visiting in Kalamazoo, Mich., and Watertown, N. Y., this week.

* * *

Oliver M. Porter, secretary of the American Paper and Pulp Association, has been elected a member of the Board of Directors of the Swedish-American Chamber of Commerce.

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, and his son, Gifford, leave today, Thursday, on a ten days' automobile tour through the western section of North Carolina and the eastern section of Tennessee.

* * *

E. C. Martin, formerly sales manager of the Interlake Tissue Mills Company, of Toronto, has been appointed general sales manager of the Saranac Pulp and Paper Company, of Plattsburg, N. Y., and the Independent Paper Mills, Inc., of New York.

* * *

B. S. Summers, of Port Huron, Michigan, was in New York last week on his way to Cardenas, Cuba, where he will act in a consulting capacity for the International Harvester Company at its La Conchita plantation. Mr. Summers expects to stay in Cardenas for about six months.

* * *

S. C. Knode, vice-president of the New York Division of the Salesmen's Association of the Paper Industry, and also vice president and sales manager of the Albemarle Paper Manufacturing Company, is at present in the west visiting Chicago, St. Louis and other large centres. He is due back in New York this week end.

* * *

There was another excellent attendance at the regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry. Charles Addoms, of the Miller & Wright Paper Company, Inc., gave an excellent address on "Book Paper" which was followed by a general discussion of the common problems of the mill and the merchant. Dr. E. O. Merchant explained another of his business charts and discussed its relation to the paper business.

* * *

The Henry F. Lindenmeyr Sons Company, now at 32 Bleecker street, has leased from plans 56,000 square feet in the Green Industrial Building, under construction at Hudson and Canal streets. The company was established in 1859 and Fritz Lindenmeyr, president, is the third generation to conduct the business. It is one of the last of the big paper houses to leave the east side, a movement resulting from the printing houses establishing themselves in the Holland Tunnel Zone during the last two years.

* * *

Continuing its series of luncheons at which a special grade of paper is featured, the New York Division of the Salesmen's Association of the Paper Industry will hold a Coarse Paper Luncheon on Monday, April 9. The merchants present at this luncheon will be W. E. Ebbetts, of Coy-Disbrow & Co., and J. C. Mallilieu, of George W. Millar & Co. The presence of Mr. Ebbetts and Mr. Mallilieu assures another maximum attendance. As at the previous special luncheons, the program will be informal but there will be a full discussion of the various problems of the featured grade from the point of view of both merchant and mill.

* * *

The Tenth Annual Convention of the National Paper Box Manufacturers' Association will be held at the Waldorf-Astoria, New York, on May 23, 24 and 25. This year, New York and Northern New Jersey paper box manufacturers are acting as hosts to the Nation, so to speak. As the trains roll in from the North, South, East and West, the old town's best handshakers will board them at points within a half hour of New York, giving conventionites a rousing welcome. At the depots taxicabs will be held in readiness to whisk visitors to the Greeters' Headquarters at the Waldorf-Astoria, where, on the evening preceding the convention, they will dine and enjoy a continuous performance by the best talent obtainable. The big banquet and show will be held Thursday evening, May 24, with Walter E. Trum as toastmaster. According to present indications there will be 1,000 to 1,200 present on this occasion. The banquet speakers in all probability will be Mayor James J. Walker, Irvin S. Cobb or Edgar A. Guest. Following the banquet there will be a show sponsored by the New York and Northern New Jersey General Convention Committee when musical comedy, dramatic, screen and radio stars will perform. Festivities will conclude with dancing in the Astor Galleries, adjoining the banquet hall, with music by an ether piercing orchestra often heard over the radio.

Connecticut in Waste Utilization

On Monday, March 26, Representatives of the paper and board mills of Connecticut met with representatives of the State Water Commission and Connecticut Manufacturers Association in the Senate Chamber of the Capitol at Hartford, to develop a cooperative program in waste utilization and stream improvement. The meeting was called by the Connecticut Manufacturers Association, and was well attended. Connecticut is the first of the Northeastern States to initiate such a cooperative movement.

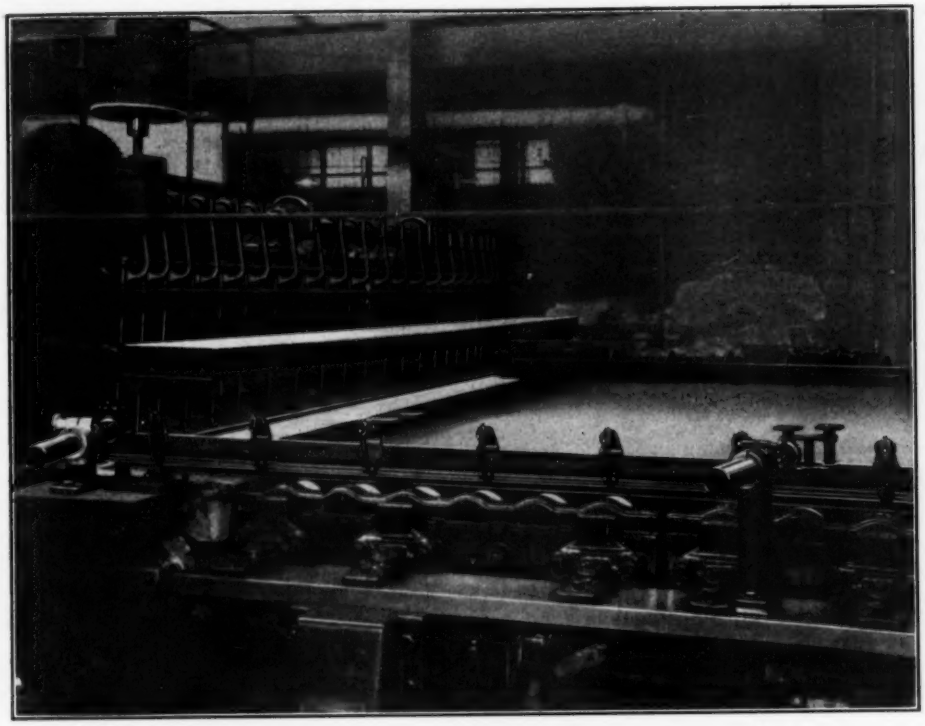
S. H. Wadhams, M.D., Director, and William R. Copeland, sanitary engineer, represented the State Water Commission. Dr. Wadham stated that the commission had very definite jurisdiction in the control of stream pollution, but that they realized the importance of industry, and were proceeding cautiously that a constructive program, not injurious to industry might be developed. He then introduced C. M. Baker, engineer of the American Paper and Pulp Association, who outlined in some detail the program of the association, and told of cooperative policies developed in other states. He concluded with a suggestion that a committee, representative of the paper mills, be appointed to cooperate with state officials, and the American Paper and Pulp Association. After some discussion, it was unanimously agreed that such a committee be appointed by the Connecticut Manufacturers Association. The personnel of this commitee will be announced later. Similar committees, representative of other industries in Connecticut, will doubtless be appointed later. The chairman of such committees, constituting a central committee of the Manufacturers Association, to coordinate the activities of the various industries interested in stream improvement.

The question of constructing a pulp mill to utilize the waste woods of Connecticut, was also discussed. Mr. Heritage of the Forest Products Laboratory, Madison, Wis., spoke in some detail on the semi-chemical process of pulping hard wood, and the probable utilization of such pulp in the mills of the state. He also presented cost data, regarding the construction and operation of such a mill. There appeared to be some doubt, however, whether such pulp could be economically utilized in Connecticut. Arrangements were, therefore, made for the appointment of a committee, by the Manufacturers Association, to study the matter more in detail, and report later.

Globe Paper Co. Operates White Paper Division

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 2, 1928.—The Globe Paper Company is now operating a white paper division at 10 High street. Joseph Goodman, who is president and treasurer, has been in the coarse paper business for more than 30 years and has handled white paper as well as coarse for the last six years. The coarse paper is handled at 110 Fulton street, this city.



To Reach Minimum Costs In Making Paper—

Without sacrificing quality, the Voith Inlet is equipment designed primarily to cut operating costs—to give dependable performance on either the Straight Fourdrinier, Harper or Yankee machines. That it is aiding mills to reach minimum costs in making paper is the experience of 108 mills operating 230 Voith Inlets. These installations are not confined to one kind of paper, but many kinds.

The operation savings in many cases have paid for the Voith Inlet. Its initial cost is low compared to its performance—as a labor and time saver alone, aside from these advantages:

Saving of wires so they last 10% to 15% longer
Fewer shutdowns of machines from breaks
Insuring paper of uniform caliper

Accurate control of stock as it flows onto wires
Fewer lumps and foam spots
Use of more wire surface for formation purposes

The repeat orders from mills operating Voith Inlets demonstrate its general acceptance. Perhaps the experience of some of these users is of interest to you? We'll send you upon request complete information on the Voith Inlet. Write for it now.

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: 350 Madison Avenue

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Smith & Valley Iron Works Co., Portland, Oregon

Power Plant Section

Reducing Power Costs Through Unit Treatment

Conducted by REGINALD TRAUTSCHOLD, Consulting Engineer

Modernizing the Mill and Power Plant

Water and Steam Purification

Water and Steam Purification

The association of water purification with steam purification is appreciated in a general way, doubtlessly, by many of the pulp and paper mill power plants, but it is very questionable whether many mills have a clear insight as yet into the interrelations of the wastes occasioned by the formation of scale, corrosion and wet steam or whether they realize that today scale can be prevented, corrosion inhibited and dry steam delivered from any and all of the thousands of steam boilers operated by such plants. This very marked and important development has been made possible through the combined efforts of private companies engaged in power plant engineering and equipment manufacture and the U. S. Bureau of Mines. Cause and effects have been analyzed and studied, a great deal of experimental work conducted, with the result that much has been learned concerning the evils enumerated, their relation to one another and of means of circumventing them in highly profitable manner.

Perhaps the best way of evaluating the really marked opportunities of reducing power costs by what may well be termed a complete system of water and steam purification is to touch briefly upon the various factors involved, taking them up in the reverse order of their influence. That is, to start with the desired result, a plentiful and economical supply of dry steam, and trace the various causes for moisture in and contamination of steam back to the causes of scale formation. Reconstructing the cycle with brief expositions of the character of the advisable equipment or treatment to combat the individual wastes will then best demonstrate intrinsic value of each step in a complete system of water and steam purification in the boiler plant.

Causes of Steam Contamination

Steam contamination, wet steam, may be due to priming, foaming or mechanical entrainment. These three causes are all embracing and each is due to definite and now fairly well understood causes.

Priming is the result of violent ebullition, spasmodic in character, which throws water over into the steam mains in slugs, or gulps. These may account for 50 per cent or more of the weight of the steam. At 150 pounds gauge, for example, 0.66 per cent of water will represent 50 per cent by weight of the wet steam. In volume, this does not amount to much, but in its effects upon the thermal capacity of the steam supply is very costly. The chief causes of priming are concentration of soluble solids and suspended matter, character of load, high rating, type of boiler and high water level. While the latter cause, high water level, may occasion severe priming of usually long duration, it and priming attributable to load fluctuations, driving the boiler at high ratings and to rapid changes in load are due to what may be termed localized conditions. That is to say, their control and regulation must of necessity be exercised, so far as the causes cannot be avoided, at the steam outlet from the boiler.

The foaming of boiler waters is attributable to the presence of a combination of suspended and soluble solids or to an oily condition of the boiler water brought about by a combination of saponifiable oils with the sodas, introduced for softening the water, to form a soap. It is largely a surface condition, evidenced by the formation of froth, or bubbles, which accumulate in the steam drum, partially or even totally filling it. This form of steam contamination is very apt to be a constant annoyance and to become more severe the higher the boiler rating.

Mechanical entrainment differs from either priming or foaming of boilers in that it may occur with waters low in mineral solids. However, excessive entrainment, in excess of 1 or 2 per cent, is only apt to occur in boilers operating at high ratings. It will increase slightly as ratings climb, reaching perhaps a value of 5 per cent entrained moisture at extremely high ratings.

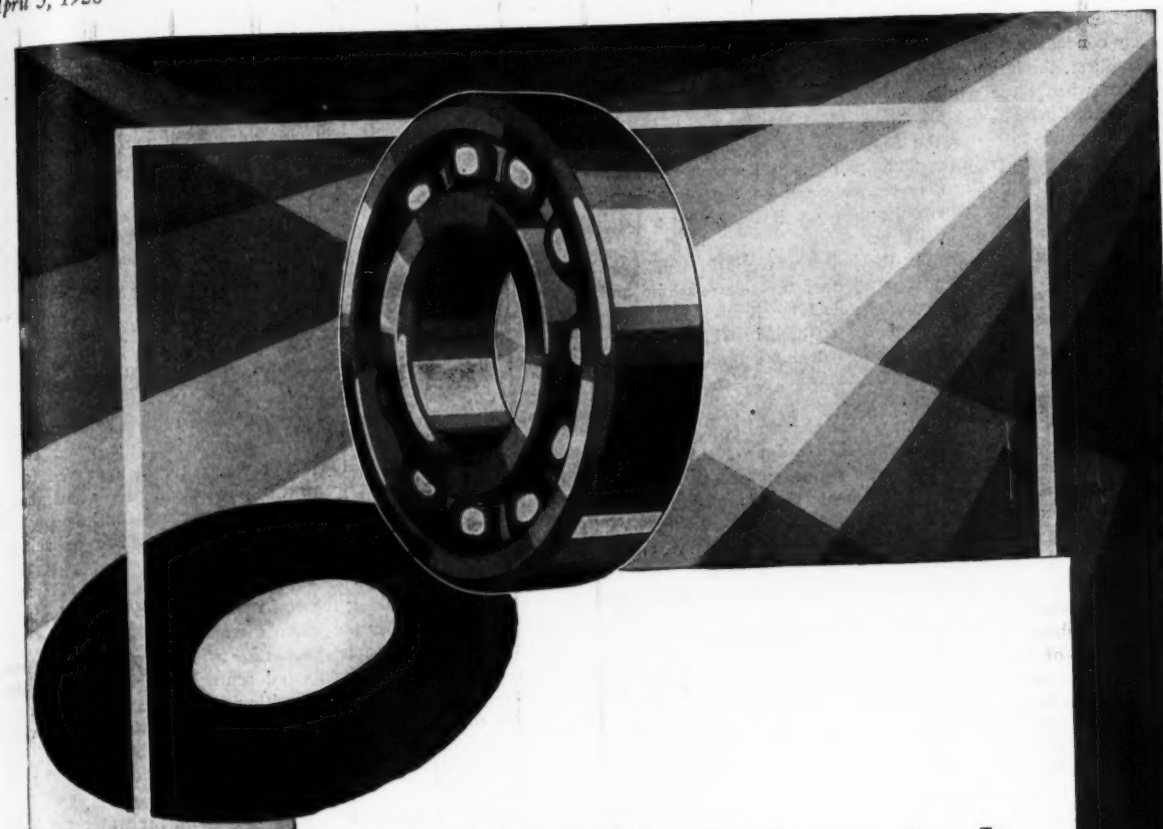
The removal of moisture from steam, due to these various causes of steam contamination, can be effectively consummated with the aid of so-called steam purifiers, some of which were touched upon in the discussion, "Steam Traps and Steam Purifiers Yield Handsome Returns," which appeared in these columns on December 8, 1927. These steam purifiers, the effective functioning of which calls for a suitable steam trap drain for handling the removed water, are of two general classes, those of the internal and external varieties.

The internal purifiers are built into the steam drum of the boiler and are either of the multiple baffle or centrifugal types, the former being subdivided into those operating on the scrubber and diffuser principles. The external purifiers, *i.e.*, units located outside the boiler, handle the steam output between the steam nozzle of the boiler and its discharge into the superheater or main steam header. These external purifiers, in addition to being constructed in the baffle and centrifugal types, are also made in the receiver type. The latter are in effect standard steam separators of somewhat special construction.

These steam purifiers function admirably and are effective and efficient in assuring a supply of dry steam, but by themselves cannot prevent the costly fuel losses, rapid deterioration of boilers, superheaters and other boiler plant equipment nor can they obviate the contraction of heavy maintenance expenses occasioned by scale formation, the premium exacted by hard water. Water purification is as important as steam purification and, perhaps, more so. Proper boiler water conditioning, in fact, is one of the most profitable refinements which can be undertaken in modernizing the mill and power plant.

Principles of Boiler Water Conditioning

Practically all water supply, from river, lake or well, contains some hardness, the scale forming agent, so the problem of water softening, or conditioning, is one which confronts every industrial activity dependent in any way upon the generation and use of steam. The paper industry is particularly concerned, for its power units are operated non-condensingly for the most part, in order to furnish exhaust steam for process operations. This means that the boilers must be supplied with large proportions of make-up water. The plants which best avoid the evils incident to the use



WHEN the higher priced product outsells the cheaper—there is not much more to be said.

Ball Bearings outsell other anti-friction types two to one.

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of make-up water by operating their power generating units exclusively condensingly and conserving exhaust steam to the utmost are, doubtless, the large electric service central stations. Nevertheless, even when these models of efficient and economical power plants succeed in attaining the almost ideal condition of only 1 or 2 per cent make-up water the formation of devastating scale is not eliminated. Boiler water conditioning is still necessary. How much more important, then, is proper water conditioning in the paper mill power plant where the make-up is invariably a large proportion and may even be 100 per cent.

The ordinary way of treating the boiler water is by conditioning the make-up, either by precipitation of the salts of lime and magnesium, etc., the scale forming elements, by chemical treatment, or by what is known as the exchange method, in which the lime and magnesia are absorbed from the hardening salts in the water, as it passes through a bed of zeolite material, and sodium substituted. Water filtering also plays a part.

No attempt will be made to discuss the chemical reactions which take place or to describe in detail the efficient systems which have been developed to effect such water softening. Instead, statistics may well be presented to indicate the monetary gains to be realized through the installation of such systems. Two typical instances will suffice, one in which the make-up is 100 per cent and the other where the make-up is about 70 per cent.

In the first instance, four 150-horsepower and one 200-horsepower boilers are in service. To condition the raw water supply formerly employed for boiler feed, a 5,000-gallon water softener was installed, at a cost of $5,000.00. The annual cost of the equipment, including depreciation, interest on investment, the cost of power for pumping and agitating, repairs, all maintenance expenses and the cost of the chemicals, soda-ash and lime, used during the year, totals to $2,763.68. The savings effected are a reduction in the annual fuel bill of $4,350.00 and decreased yearly maintenance, cleaning labor alone, of $528.00. That is, the investment is virtually returned annually, in the very tangible economies effected in fuel and labor expenses. In addition, about as great savings are claimed in economies not as yet evaluated, among which is the reduction in fixed charge burden brought about by more continuous boiler service.

In the installation entailing the use of 70 per cent make-up water, savings of much the same order are effected. A 5,000-gallon water softener, costing $6,000.00, is in question and effects a total annual saving in reduced coal bills and decreased maintenance in connection with both boiler and feed water heater cleaning of $6,810.25, after paying all expenses entailed in the operation of the boiler water conditioning system.

These systems attack the problem of water conditioning by treating the make-up supply and differ fundamentally, therefore, from systems in which the boiler water, rather than the make-up water, is conditioned. The principles governing the latter are of particular interest, in view of the facts that it is the condition of the water in the boiler, rather than that of the make-up, which causes the scaling so detrimental to the operation of the boiler; that the substances forming the scale tend to concentrate in the boiler water no matter what care is exercised in conditioning the make-up; and that the concentration of soluble solids introduced in the treatment of the make-up and suspended matter is one of the chief causes of wet steam.

It is known that the deposition of the many different adherent scales which may be formed in the boiler does not take the form of independent particles which afterward coalesce to form the familiar hard, dense scale, but rather that the scale forming substances crystallize from solution on the evaporating surfaces. In other words, it is only when the solubility of foreign substances decreases with elevation in temperature that they are deposited upon the evaporating surfaces as adherent scale, increasing in thickness in proportion to the amount of water evaporated. On the other hand, when substances whose solubility increases with a rise in temperature are precipitated from a boiler water, they form as independent particles in suspension and as they accumulate become sludge. The conditions which determine whether the deposition of solids from boiler water shall be as adherent scale or as sludge are, then, the nature of the soluble solids in the boiler water; their quantity, which is controlled by the amount present in the raw water, blowdown practice and the moisture in the steam; and the operating pressure, since the solubility of the solids varies with the boiler temperature.

In the conditioning of the boiler water, not simply the make-up, the objective is to produce suspended sludge, so preventing the formation of adherent scale. The actual treatment of the boiler water does not differ greatly from that of conditioning the make-up, but the treatment takes place under the existing conditions of heat and pressure in the boiler, which cannot, of course, be done when conditioning the make-up supply only. By treating the boiler water, it is possible, not only to neutralize the scale-forming tendency of the water by suitable chemical treatment, but to do so without creating an undue concentration of soluble solids and suspended matter productive of wet steam, since the water conditioning systems treating the boiler water are in approved forms provided with a "de-concentrator" by which the accumulating sludge, soluble solids and suspended matter are continuously and effectively removed from the boiler without waste of suitable boiler water.

The de-concentrator is simply a specially designed combination of pump and filter, taking the contaminated water from the upper boiler water level, near the steam disengaging surface, where the water contains the greatest proportion of suspended and foreign matter, filtering it thoroughly and returning the cleansed water, to which may be added the conditioning chemical in solution, to the boiler. This cycle is in effect equivalent to a blowdown, which would otherwise be necessary with its unavoidable waste of heat and water, equal to the amount of water filtered by the de-concentrator.

There is still a third system of conditioning the water for boiler service which seems to have met with considerable favor in paper mill service. It is unique in that no chemicals are employed to condition the water. The purification of the water is effected by bringing the feed water into intimate contact with live steam at boiler pressure, the precipitation of scale-forming solids, etc., which would otherwise take place within the boiler, occurring in the purifier, a closed tank where the live steam and feed water come together. This purifier contains a number of removable pans, or trays, onto which the precipitates settle as the feed water is brought virtually to boiler temperature under conditions of pressure and heat similar to those which pertain in the boiler itself.

Reconstructing the Cycle

From the treatment of boiler or make-up water through to the installation of a commodious steam trap for draining the steam purifier there are opportunities at each step of the cycle for highly profitable modernizing of the paper mill plant. And, which is particularly fortunate, these opportunities need not be grasped all at the same time, but can be taken advantage of piecemeal, expanding the system as conditions demand. Furthermore, each step in attaining the desired objective of a continuous and adequate supply of dry steam at minimum unit production cost, can be taken with every reasonable assurance that whatever investment may be entailed will prove a wise and profitable venture.

This is being more generally appreciated daily, by the leaders among the more progressive mills, so perhaps the best way of reconstructing the cycle is to refer briefly to a number of progressive installations in which the complete cycle has not as yet been completed or in which initial steps in the cycle have in themselves attained the ends as yet formulated by the mills. These installations, it might be well to add, have been made on the recommendations of a prominent consultant specializing in such problems.

At one of the leading western mills, for example, a severe condition of economizer corrosion and boiler scale formation has pertained. To remedy the condition at minimum expense, a system of chemical treatment was inaugurated to free the water of

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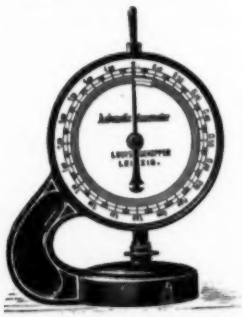

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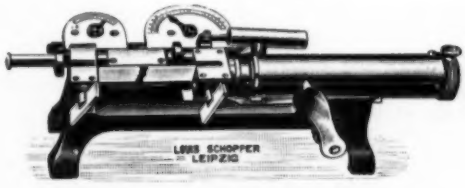

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both its corrosive and scale forming proclivities, but so treating the water gave rise to a potentially severe wet steam condition. This made it necessary, or at least highly advisable, to install steam purifiers. To save expense, however, the purifiers were installed without steam trap drainage, with the result that the steam supply is not entirely dry. So very successful has been this partial installation, partial from the viewpoint of supplying really dry steam at minimum expense, however, that the mills in question are apparently satisfied with the substantial betterment effected and propose delaying the installation of drainage traps until such time as the slightly wet steam, which is a great improvement upon the previous supply, exacts a toll which will command the installation of the traps.

An Installation in New England

An installation in New England for a mill on the Androscoggin River, where the water is badly contaminated with organic impurities and, though quite soft, causes the deposition of sufficient scale in water screen and water walls to cause serious tube distress, is more complete. Water treatment, de-concentration of boiler water and steam purifiers are all employed. This installation is particularly interesting in that owing to the softness of the river water it is very problematic whether any system of feed water supply "softening" would have been effective in removing much of the calcium and magnesium content of the water. Instead, a more powerful chemical than usually employed, tri-sodium phosphate, with a little soda ash to combat acidity, was introduced at the feed water heater and de-concentrators provided for the continuous filtration of the boiler water and the removal of suspended material in the feed water or precipitated in the boiler from the calcium and magnesium content of the raw water. This chemical treatment of the water aggravating the tendency to produce wet steam, steam purifiers were installed in all boilers. The result has been the complete elimination of scale and a constant supply of dry steam.

Success of This Installation

The success of this installation led another mill, somewhat further down the Androscoggin, to treat its water supply in a more or less similar manner, conditioning it with tri-sodium phosphate and installing de-concentrators, but omitting the steam purifiers, at least temporarily, for the reason that no trouble was experienced with wet steam. An interesting sidelight on this installation is that the steam pressure is practically double, 400 pounds gauge, that on which the other mill on the same river, with the same kind of water supply, operates. Despite this, the results secured are eminently satisfactory.

Other Interesting Instances

Another interesting instance of progressive water and steam purification is in the case of one of the prominent southern mills. Quite a number of de-concentrators have been employed with excellent results for several years, but without conditioning of the boiler water. It seems that the formation of scale was not considered sufficiently serious at the time the de-concentrators were installed to warrant, it was thought, the expense of chemically treating the water. Since then, however, the mill has ascertained that the additional savings in the elimination of scale, the de-concentrator alone not preventing scale, would well justify the little additional investment called for and is at the present time inaugurating such chemical treatment.

One more instance where even very partial water and steam purification pays handsomely is that of one of the leading Canadian mills. Chemical conditioning of the water has been inaugurated with considerable gain, but without, for the time being at least, the purchase or installation of any equipment. This plan is being followed, incidentally, at the suggestion of a firm of leading consultants.

These various examples of partial and progressive water and steam purification installations have been cited, not only to illustrate the awakening of the industry to the economies of dry steam and the proper conditioning of the boiler water in the prevention of scale formation and the inhibition of corrosion, but as evidence of the multiplicity of opportunities of realizing substantial savings and effecting well worthwhile economies at each and every of the various steps in the evolution of a complete system of water and steam purification. Rarely is the opportunity provided for such progressive capitalization on inaugurating a system in modernizing the mill and power plant, effecting step by step monetary savings of a magnitude to justify all previous outlays.

New Wood Rosins

The Hercules Powder Company announces the commercial production of new grades of wood rosin. These new rosins are the result of several years of research and development work and have already been tested in various industries where they have been found to possess many advantageous and desirable properties.

The lighter of these rosins grades H to I in color. It has an acid number which averages about 167 and its saponification number averages about 173, which corresponds to an abietic acid equivalent of 93 per cent. Its melting point ranges between 176 and 180 deg. F. when determined by the drop method. It is very brilliant due to its high degree of purity and its freedom from foreign matter and volatile oils.

This new rosin is of especial interest to users employing lime, soda, or organic esterfying reagents, since its freedom from excessive resene content and foreign matter cause it to react very readily under heat, thereby minimizing the danger from foaming in the reaction process.

It also has been found to have value as a raw material for soap, gloss oils, varnishes, ester gum, battery wax, paper size, rosin oil, disinfectants and many other uses to which rosin is put.

The darker of these rosins grades B in color and has value as a raw material for pitches, plastics, black paints and varnishes, box toes, impregnated felts, smoking ingot molds, rubber compounds, dry core binders, and many other uses requiring a dark rosin. Its melting point is high varying by the drop method between 187 and 192 deg. F. This rosin is high in unsaponifiable matter, low in acid value, is tough and should be of considerable interest to those consumers who have long been looking for a rosin of this character.

E. O. Reed to Address A. S. M. E.

On Wednesday evening, April 11, at 8:00 o'clock, in the Engineering Societies Building, 29 West 39th street, New York, there will be a joint meeting of the Printing Industries Division and the Management Division, of the American Society of Mechanical Engineers with the United Typothetae of America co-operating. The chairman will be Charles F. Hart, mechanical superintendent of the *New York Times*. The meeting will have as its general subject: "Where Is Improvement Most Needed in the Printing Industry—Equipment or Management?"

The following speakers will address the meeting: E. O. Reed, member TAPPI and technical director, Government Printing Office, Washington, D. C., on "Advantages of Technical Work to the Printing Industry." Mr. Reed's paper will be based upon the results from the technical testing and control work inaugurated in the Government Printing Office by the present Public Printer. Charles W. Kellogg, manager of the Engineering Department, American Type Founders Company, Jersey City, N. J., on "Engineering as Applied to Printing Plant Layout." Mr. Kellogg's paper will cover the effect on costs and profits of scientific layout and equipment and will hint at possible standardizations in the future. These papers will be followed by discussion to the points advanced.

The United Typothetae of America motion picture film, "The Romance of Printing," will be given as an entertainment feature. Members of the Technical Association of the Pulp and Paper Industry are invited to be present and discuss the papers.

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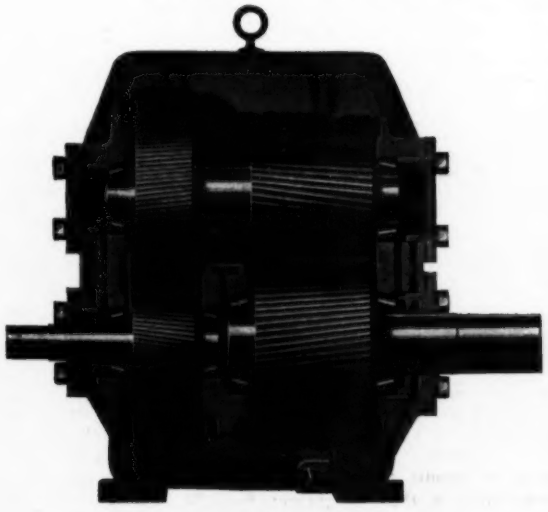

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PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending January 31, and for the Six Months Ending January 31, 1928, as Compared with Corresponding Months of Previous Year

IMPORTS—PAPER

	January				Six Months Ending January 31			
	1927		1928		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and manufactures (total)	.....	$12,265,321	.....	$13,017,337	.....	$72,352,009	.....	$77,762,328
Printing paper—								
Standard news print ..... lbs...free	332,204,497	11,028,972	355,615,380	11,646,701	1,933,905,265	64,504,884	2,081,138,000	68,858,768
Imported from—								
Finland ..... lbs.	6,279,092	188,681	4,240,412	118,017	34,995,030	1,037,211	26,619,223	753,769
Germany ..... lbs.	943,804	28,571	1,146,669	33,051	5,590,912	169,611	6,414,525	192,944
Norway ..... lbs.	5,267,118	144,857	305,984	8,211	10,172,621	284,135	16,411,028	441,639
Sweden ..... lbs.	15,289,647	447,707	11,262,177	299,265	51,019,903	1,492,887	65,314,290	1,818,261
Canada ..... lbs.	291,464,236	9,766,356	315,766,948	10,446,633	1,694,526,356	57,020,012	1,829,712,157	61,227,915
Newfoundland and Labrador ..... lbs.	12,788,242	447,585	22,674,818	734,226	137,129,893	4,487,657	135,574,836	4,390,427
Other countries ..... lbs.	172,358	5,215	218,372	7,298	470,550	13,371	1,091,941	33,813
All other, n. e. s. ..... lbs...dut.	910,216	45,365	669,702	29,918	8,031,474	403,688	5,244,574	252,878
Grease-proof and waterproof paper ... lbs...dut.	160,175	31,921	51,586	9,053	1,046,617	179,340	668,919	105,914
Kraft wrapping paper ..... lbs...dut.	359,651	16,765	568,111	24,235	4,273,951	191,237	7,480,384	310,684
All other wrapping paper ..... lbs...dut.	460,855	21,217	890,660	20,138	2,585,233	144,993	10,740,168	224,278
Writing, letter, drawing, etc., papers. lbs...dut.	201,043	48,130	159,581	40,048	1,953,689	530,008	1,975,694	542,587
Surface coated paper ..... lbs...dut.	202,687	71,375	138,113	71,443	1,071,936	375,915	1,133,960	475,729
Tissue, copying, etc., paper ..... lbs...dut.	235,440	124,842	291,494	179,567	1,464,610	741,844	1,695,675	957,030
Paper boards, n. e. s.—								
Pulp boards in rolls ..... lbs...dut.	3,407,581	84,628	3,792,839	85,858	29,409,877	712,280	28,716,449	659,153
Paper boards, pulp board, and card-board ..... lbs...dut.	}		{ 2,345,432	58,362	}			
Leather board, test, and wall board. lbs...dut.	}	93,449	{ 31,733	1,336	}	504,556	15,461,832	341,696
Cigarette paper, cigarette books, and covers ..... lbs...dut.	649,634	214,775	1,340,317	371,067	4,356,044	1,149,090	6,496,744	1,804,712
Hanging paper (wall paper) ..... lbs...dut.	257,581	74,181	209,507	51,641	1,803,856	286,538	844,929	269,278
Duplex decalcomania, not printed .... lbs...free	62,947	15,389	46,962	10,846	324,242	80,015	325,899	75,623
Paper boxes ..... lbs...dut.	165,528	99,177	249,509	146,982	1,075,062	481,425	1,334,658	786,938
Pulp or papier-mâché and manufactures, n. e. s. ..... dut.	.....	60,417	.....	54,056	.....	212,617	627,695	157,246
All other paper and manufactures ..... dut.	.....	234,718	.....	216,086	.....	1,853,579	.....	1,939,814

WOOD PULP

Mechanically ground wood pulp ..... tons..free	16,409	451,532	18,823	445,651	151,786	4,770,643	120,360	3,081,250
Sulphite wood pulp ..... tons	95,990	6,258,383	102,245	5,935,263	483,738	31,618,961	497,793	30,529,399
Unbleached ..... tons..free	67,298	3,979,345	78,963	4,146,215	335,990	19,919,540	343,018	18,642,684
Bleached ..... tons..free	28,692	2,279,038	23,282	1,789,048	147,748	11,699,421	154,775	11,886,715
Imported from—								
Finland ..... tons	6,003	329,870	7,614	357,522	38,374	2,164,278	32,574	1,528,351
Germany ..... tons	6,710	465,380	3,351	243,815	38,382	2,666,627	20,442	1,410,572
Norway ..... tons	4,613	386,420	3,604	244,153	27,661	2,167,348	33,416	2,406,954
Sweden ..... tons	43,177	2,672,846	56,431	3,062,447	184,136	11,455,571	213,266	12,339,113
Canada ..... tons	33,441	2,267,920	26,651	1,751,484	179,158	12,175,529	182,353	11,948,243
Other countries ..... tons	2,046	135,947	4,594	275,842	16,027	989,608	15,742	896,166
Sulphate wood pulp, unbleached (Kraft pulp) ..... tons..free	36,702	2,315,755	36,019	1,994,334	184,616	11,597,155	195,163	11,467,939
Imported from—								
Finland	590	33,974	.....	.....	10,280	573,402	9,050	444,659
Norway	1,036	62,647	804	41,861	5,150	338,194	5,785	302,849
Sweden	23,964	1,486,792	25,016	1,307,093	99,830	6,076,106	106,212	5,934,081
Canada	10,964	724,051	10,101	640,786	68,621	4,567,387	73,213	4,738,566
Other countries	148	8,291	98	4,594	735	42,066	903	47,784
Sulphate wood pulp, bleached ..... tons..free	4,427	301,811	1,168	77,602	8,413	532,205	2,974	187,564
Other pulp ..... tons..free	488	28,406	962	68,834	2,750	189,944	2,385	157,855

CRUDE PAPER STOCK

Rags for paper stock ..... lbs...free	33,528,828	726,376	37,631,368	681,540	228,289,329	4,644,184	202,459,083	3,662,528
Waste bagging, waste paper, etc. ..... lbs...free	6,933,027	105,323	8,422,904	115,189	50,247,620	1,060,572	64,986,824	831,602
Old rope and all other paper stock ... lbs...free	5,862,551	147,811	5,929,180	129,816	32,787,784	1,223,291	36,960,246	1,022,316

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS

Colors, dyes, stains, color acids, and color bases, n. e. s. ..... lbs...dut.	516,129	643,532	403,449	492,579	2,246,702	2,551,577	2,309,386	2,631,852
Imported from—								
Belgium ..... lbs.	21,928	37,928	8,705	9,707	119,560	184,802	70,659	82,700
France ..... lbs.	14,093	19,503	7,506	9,594	77,072	111,374	133,930	157,712
Germany ..... lbs.	347,266	418,643	184,202	206,997	862,356	940,717	1,208,569	1,296,472
Italy ..... lbs.	5,702	5,554	12,361	10,143	46,253	62,841	53,618	61,714
Switzerland ..... lbs.	105,690	136,150	131,864	176,713	861,292	1,017,314	744,637	935,898
United Kingdom ..... lbs.	14,587	16,084	4,161	4,849	98,993	106,435	51,479	57,002
Other countries ..... lbs.	6,863	9,670	54,650	74,576	181,176	128,094	46,494	40,354
Casein or lactarene ..... lbs...dut.	3,481,687	399,264	3,232,488	463,054	10,549,638	1,330,269	8,439,519	1,201,945
Kaolin, china, and paper clay ..... tons..dut.	28,450	294,948	19,046	180,556	179,438	1,746,999	152,857	1,466,362

(*Continued on page 50*)

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PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(*Continued from page 48*)

EXPORTS—PAPER

	January				Six Months Ending January 31			
	1927		1928		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and manufactures (total)	.....	$2,123,682	.....	$2,422,699	.....	$13,381,583	.....	$13,102,650
Printing paper—								
News print paper ....lbs.	2,719,613	121,961	3,515,046	153,352	16,157,422	800,983	9,882,483	490,782
Exported to—								
Canada ....lbs.	67,446	5,027	319,723	18,075	1,064,629	72,675	1,611,252	98,893
Central America ....lbs.	54,291	2,874	58,163	2,252	307,296	14,592	461,046	22,825
Mexico ....lbs.	42,391	2,313	26,199	1,301	527,687	25,329	381,951	17,969
Cuba ....lbs.	308,673	14,455	459,330	21,304	2,731,101	127,193	1,766,350	83,983
South America ....lbs.	775,575	32,111	431,047	17,428	3,652,396	156,515	2,222,053	100,171
China, Hong Kong, and Kwantung..lbs.	187,870	13,671	110,010	4,612	3,717,260	175,974	82,070	5,857
Japan ....lbs.	21,955	932	15,093	693	80,576	3,289	30,534	2,244
Philippine Islands ....lbs.	1,198,376	47,130	1,945,588	80,525	3,258,662	175,874	2,765,127	125,293
Other countries ....lbs.	63,036	3,448	149,893	7,162	817,815	49,542	562,100	33,345
Book paper, not coated ....lbs.	1,644,746	126,581	1,594,233	131,873	9,833,640	892,534	8,176,518	688,598
Exported to—								
Europe ....lbs.	47,892	4,660	21,990	2,114	1,121,122	103,816	889,765	73,991
Canada ....lbs.	340,192	28,977	359,143	27,637	2,254,027	172,782	1,585,996	130,637
Central America ....lbs.	35,967	3,896	17,829	2,249	259,840	28,085	196,559	18,148
Mexico ....lbs.	63,682	7,433	47,819	5,252	660,797	67,001	273,213	28,184
Cuba ....lbs.	242,735	18,805	306,509	23,363	2,042,349	211,151	1,854,357	152,627
Argentina ....lbs.	80,245	6,740	54,863	7,102	254,546	21,117	472,663	38,227
Other South America ....lbs.	593,643	34,048	150,925	12,659	862,666	78,994	707,133	73,472
China, Hong Kong, and Kwantung..lbs.	.....	.....	226,856	16,126	450,174	39,996	47,529	7,009
Philippine Islands ....lbs.	84,177	6,734	177,130	11,970	1,069,666	85,556	1,349,168	90,884
Australia ....lbs.	38,888	4,586	108,333	12,337	358,646	40,384	392,786	37,373
Other countries ....lbs.	117,325	10,702	122,836	11,064	499,807	43,652	407,349	38,046
Cover paper ....lbs.	121,853	19,794	156,816	24,358	888,656	147,951	869,201	145,306
Greaseproof and waterproof paper....lbs.	191,764	24,357	205,963	31,070	1,187,147	168,375	1,321,220	197,366
Wrapping paper ....lbs.	2,575,638	189,565	3,746,073	269,591	16,291,928	1,064,816	16,401,817	1,112,909
Surface-coated paper ....lbs.	691,101	77,824	297,023	44,234	2,298,169	320,054	2,355,810	324,434
Tissue and crêpe paper ....lbs.	419,864	84,046	399,749	92,131	2,437,478	582,666	2,853,090	617,854
Toilet paper ....lbs.	413,010	56,925	372,054	44,022	2,913,580	352,387	2,907,858	335,267
Paper towels and napkins ....lbs.	165,901	23,615	185,282	25,488	1,097,225	159,548	1,226,310	180,212
Box board ....lbs.	3,820,636	101,606	3,881,639	120,770	27,501,113	795,433	19,080,355	593,716
Bristols and bristol board ....lbs.	442,081	16,791	102,865	11,385	804,474	80,953	753,158	83,412
Other paper board and straw board....lbs.	2,521,721	148,315	3,443,397	162,945	21,486,855	1,049,014	16,140,244	810,717
Sheathing and building paper....lbs.	936,446	42,319	1,146,620	42,934	6,562,411	272,712	6,142,678	230,278
Wall board of paper or pulp....sq. ft.	2,511,871	81,161	3,108,388	104,327	14,053,950	492,375	21,835,559	710,505
Blotting paper ....lbs.	265,694	31,420	276,315	32,774	1,376,344	176,615	1,971,667	217,061
Filing folders, index cards, and other office forms ....lbs.	174,705	38,712	77,499	33,275	354,013	110,049	472,544	171,108
Papeteries (fancy writing paper)....lbs.	33,139	9,958	103,696	13,835	446,948	123,683	394,453	107,586
Other writing paper ....lbs.	801,940	136,358	1,403,280	189,500	5,668,956	873,023	7,355,423	986,939
Paper hangings (wall paper) ....yds.	2,240,626	52,686	4,440,447	71,130	7,169,147	217,433	14,040,917	264,787
Paper bags ....lbs.	1,221,840	103,382	683,600	60,622	5,669,285	496,817	4,742,942	413,538
Boxes and cartons ....lbs.	1,695,989	103,838	2,050,048	146,968	10,359,300	757,645	12,260,866	863,738
Envelopes ....lbs.	238,311	40,932	187,009	32,269	1,366,526	238,181	1,198,630	196,355
Vulcanized fiber sheets, strips, rods, and tubes ....lbs.	379,549	108,489	378,360	106,310	2,293,908	712,993	1,934,253	557,089
Manufactures of vulcanized and indurated fiber ....lbs.	25,501	6,390	16,785	6,377	237,445	85,634	628,904	96,417
Cash register and adding machine paper...lbs.	110,555	13,042	214,415	23,014	1,108,258	111,162	1,109,661	110,116
Other paper and paper products	.....	363,615	.....	448,145	.....	2,298,547	.....	2,596,560

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ....tons	1,522	93,644	1,937	99,364	9,831	613,855	14,972	692,031
Soda wood pulp ....tons	49	3,053	300	25,269	699	53,206	909	78,182
Other wood pulp ....tons	353	11,650	88	5,583	4,087	183,318	449	23,288
Rags and other paper stock....lbs.	14,785,960	214,827	20,378,353	418,902	92,574,523	1,339,105	103,176,624	1,584,026

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery....lbs.	3,534,219	585,911	1,340,945	295,794	13,190,519	2,473,312	8,681,069	1,579,483

D. E. Dupuis Gets Wedding Gift

[FROM OUR REGULAR CORRESPONDENT]

QUEBEC, Canada, March 30, 1928.—On the evening of March 11 Mr. and Mrs. D. E. Dupuis received an enjoyable surprise, in the form of the presentation of a wedding gift, of a beautiful set of Limoges China, of 12 covers, from the paper makers employed under him.

The presentation was made by the general night superintendent, P. H. Kennedy, and J. H. La Bar, shift foreman, who touched on the feeling of good fellowship and high esteem held for Mr. Dupuis by his many acquaintances and co-workers both on the Pacific Coast and throughout the East, and was responded to by Mrs. Dupuis nee Miss Annie Rivers Nance of Oregon City, Ore., by a few well chosen words expressing their appreciation of so timely and well chosen a gift.

Gummed Industry's Association Formed

The National Association of Gummed Tape Manufacturers, organized several years ago, has represented the kraft paper tape interests of its member mills. In addition to kraft paper tape, many of these companies also manufacture gummed cloth tapes and flat gummed paper, so that it has been deemed necessary to expand the scope of the association's activities to such an extent that the organization will in future be known as the Gummed Industry's Association. Irving McHenry, president of the Mid-States Gummed Paper Company, Chicago, Ill., is president of the new association; E. C. Emith, sales-manager of the Nashua Gummed and Coated Paper Company, Nashua, N. H., is vice-president; and George Goodsir, eastern representative of the Mid-States Gummed Paper Company is acting temporarily as secretary-treasurer.

PERKINS HOLYOKE

Web Super-Calenders

'No Calender can be better than the Rolls in it'

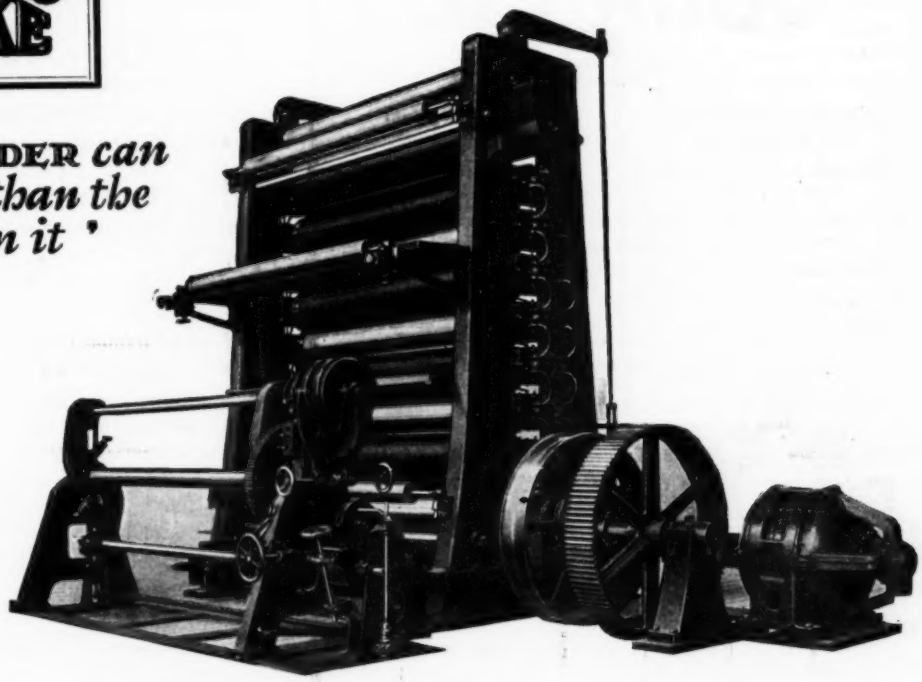

Photo shows
Perkins Nine Roll Web Super - Calender with Direct Connected Single Motor Drive Employing Dual Frequency Control.

AN IMPORTANT Factor in the development of Perkins Web Super-Calenders has been the close association of the Perkins organization with the paper makers of America for more than half a century. This experience has produced machinery for finishing paper in the *most satisfactory way it can be done.*

Perkins machines give you that ruggedness necessary for modern operating speeds and conditions. Long service is built into them. Engineering and construction have been accomplished for high efficiency in production, ease of operation, low power consumption, and minimum upkeep.

Paper makers have long since realized that no Calender can be better than the Rolls in it. Perkins Rolls are so well established through the years of successful service that these machines are given the most substantial recognition of the industry at large.

B. F. Perkins & Son, Inc., Holyoke, Mass.

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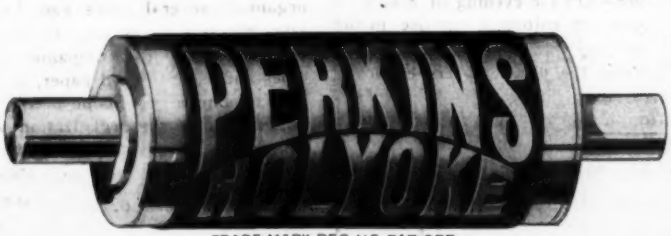
EMBOSSING ROLLS
CHILLED IRON ROLLS
GRANITE PRESS ROLLS
WEB SUPERCALENDERS
GLASSINE SUPERCALENDERS
FRICTION CALENDERS



TRADE MARK REG. U.S. PAT. OFF.

EMBOSSING CALENDERS
SHEET CALENDERS
PLATERS
MULLEN PAPER TESTERS
TENSILE TESTERS
VENTILATING FANS
RAG CUTTERS
STOCK CUTTERS
PAPER DAMPENERS
BLEACH EJECTORS

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EMPLOYMENT IN PAPER INDUSTRY

Employment in the paper and pulp industry has averaged somewhat higher than general industry during the past few years, according to the Department of Labor indexes on employment. This same condition holds true in the matter of payrolls.

The following table shows the average yearly index of general industry as compared to the average index for the paper and pulp industry (monthly average for 1923 = 100):

EMPLOYMENT
(Yearly Average)

	General Industry Index	Paper and Pulp Index
1927	88.5	93.3
1926	91.9	95.6
1925	91.2	94.4
1924	90.3	94.3

Total payrolls in the paper and pulp industry ran above the level of general industry as the following average of yearly payroll index for general industry and paper and pulp industry illustrates (monthly average 1923 = 100):

TOTAL PAYROLL

	General Industry Index	Paper and Pulp Index
1927	92.4	99.0
1926	95.8	102.5
1925	93.6	99.2
1924	90.6	96.8

SHIPPING PAPER BY CANAL

Paper mills of the Upper Hudson Valley are planning a much wider use of the Champlain barge canal during the coming season which according to all indications will establish a new record in the matter of pulp and paper shipments. Each season during the past four or five years has seen the shipments of paper and pulp mount steadily. Figures compiled by the New York State Canal Board for 1927 show that the tonnage of paper products carried on the canal during last season exceeded by a considerable margin the best previous record for one season.

Paper mill executives of the Upper Hudson region and Northern New York generally, have felt for some time that the mills of this section were being discriminated against in the matter of freight rates on the railroads and a concerted effort is now being made to bring about lower freight rates. While the rate battle against the railroads is going on the mills are turning more and more to the all-water routes which they are finding entirely satisfactory. Water shipments from the Upper Hudson district to Metropolitan points are said to reach their destination much sooner than shipments by rail and in addition a considerable saving in shipping costs is effected through use of the water route.

Mills in this section which until two or three years ago made little use of the canal have found shipping by barge so attractive that they are planning to use the waterways almost entirely during the canal season. In the immediate vicinity of Glens Falls three of the largest shippers by way of the canal during last season were Finch, Pruyn & Co., of Glens Falls; International Paper Company, of Fort Howard; and the Union Bag and Paper Corporation, of Hudson Falls.

The I. P. mills at Fort Edward are the most favorably located of the three being but a short distance from the Fort Edward canal terminal. The I. P. Co. maintains a fleet of barges which ply between Fort Edward and Metropolitan points bringing in raw materials and taking out the finished paper product. The company it is said will add to this fleet during the coming summer as plans are under way to use the canal exclusively for outgoing and incoming shipments to the Fort Edward plant.

In the case of Finch, Pruyn & Co. and the Union Bag and Paper Corporation, shipping by canal entails a haulage of considerable distance from the mills to the Fort Edward terminal. Both these concerns are located on what is called the Glens Falls Feeder Canal and formerly it was the custom to transfer cargoes from the large canal barges at Fort Edward to smaller boats capable of negotiating the shallow channel of the Feeder Canal between Fort Edward, Hudson Falls and Glens Falls. These two concerns, however, during the past year or two are said to have found it more economical to use motor trucks between the Glens Falls and Hudson Falls mills and the Fort Edward canal terminal. The small boats formerly carrying shipments over the Feeder Canal to and from the Union Bag plant and Finch Pruyn & Co., have been almost entirely abandoned during the last year or two in favor of the motor truck which affords a quicker and more economical method.

The 1928 canal season will open considerably earlier than last year it is said as only a few minor repairs are to be made before the water is turned in.

STANDARDIZATION IN ELECTRICITY

Adoption of minimum standards of performance for electrical products as the next logical step in the standardization program of the electrical industry was recommended by Mr. W. S. Ruggs, vice-president of Westinghouse Electric and Manufacturing Company, in an address recently before the National Electrical Manufacturers Association.

"If electrical manufacturers in the United States are to maintain their place in the world market and at the same time maintain a scale of wages which will permit our present or an advanced standard of living, this must be done through an increased attention to the costs of production and distribution. To achieve this, there must be a degree of standardization sufficient to maintain a given model until the expensive machin-

ery necessary for its production in quantity may be justified," said Mr. Rugg.

Successful standardization already accomplished by the industry on apparatus characteristics, such as capacity, speeds and dimensions, should be followed by establishment of quality levels of performance in Mr. Rugg's opinion.

Regarding the minimum standard of performance as a direct means of achieving economy and efficiency of production, and above all, of insuring the user of apparatus against unbalanced design and performance, and general unsatisfactory service, Mr. Rugg described the ideal minimum standard as accomplishing a balance between:

1. Lowest cost of manufacturing and distribution.
2. Greatest adaptability to the purpose for which the apparatus is to be used.
3. Greatest durability, or its length of life.
4. Lowest cost of maintenance.
5. Lowest cost of power for operating it.

Such standards should be developed to meet the interests of the major groups concerned. These are the manufacturer, the application engineer, the manufacturer of power and the user, and should be so adjusted as to require no immediate undue cost or redesign and retooling, and to permit a gradual raising of the standard as the producer's skill should increase.

"Minimum standards of performance should be especially advantageous in all lines of electrical apparatus which have been long enough established to have arrived at a more or less stable condition," asserted Mr. Rugg. "There could be no objection to devices having certain characteristics better than the minimum required standards. There should, however, be a penalty attached to devices in which any characteristic is below the minimum agreed standard."

The adoption by National Electrical Manufacturers' Association of minimum standards of performance should be accomplished only after careful consultation with other branches of the industry," said Mr. Rugg, who added, "as time goes on, we will find that the process naturally accelerates by practice and acquaintance, and it would be but a short time when it would become more or less common practice."

"If the various members of the N. E. M. A. could come to a mutual agreement that after a certain date all bids upon the apparatus for which a minimum standard had been adopted, would contain a statement that the apparatus bid upon conformed to the N. E. M. A. standard, I believe it would effectually bring all manufacturers into line. The salesman of a manufacturer who had adopted the standard would naturally call attention to this fact and would make it a selling argument. The salesmen of a manufacturer who had not adopted it would, therefore, continually urge upon his manufacturing plant and engineers to get in line. In other words, a manufacturer who would not conform to this minimum standard would have to make excuses.

D. C. Everest in the Pacific Northwest

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., March 29, 1928.—D. C. Everest, president of the American Pulp and Paper Association, was greeted cordially on his trip through the Pacific Northwest recently. He spent some time at Longview, Washington, with M. A. Wertheimer, who has been visiting the plant of the Longview Fibre Company of which R. S. Wertheimer is resident manager.

TAPPI Secretary Guest at Kalamazoo

The Paper Technologists Club of Kalamazoo, tendered an informal dinner to R. G. Macdonald on Friday evening, March 30, at the Park-American Hotel.

The club president, Ivar Lundbeck, with a few well chosen words, introduced as the guest of the evening the secretary of the Technical Association who outlined the program of the association for the coming year and indicated some of the ways in which the Technical Association can be of value to its members and to other technical men in the industry. It was pointed out that one of the reasons for the continued success and prestige of TAPPI is the self generated interest of its members who participate in its committee work because they are interested in accomplishing things that will be of permanent value to the industry and incidentally to themselves.

Following Mr. Macdonald's talk each member was given a sealed envelope in which was enclosed a topic for a three minute address. These topics included opinions regarding conventions, mill experience, etc., and in each instance led to considerable enjoyable discussion by all present.

In addition to the general discussion a delightful musical program was presented and helped to make the affair one that will be remembered with pleasure by those who attended.

W. J. Lawrence, Harry Bradford and Alex Macvie gave some interesting reminiscences of the early days of TAPPI and of the fall meeting which was held in Kalamazoo in 1916. The high standing of TAPPI and the improved status of the technical man in the industry were attributed largely to the objective of the industry to secure quality and uniformity in its product rather than entirely to obtain maximum production.

Those who were present at the dinner included Ivar Lundbeck, Lee Paper Company; Harry Bradford and Herbert Davy, Rex Paper Company; Alex McVie and M. D. Bardeen, Lee Paper Company; F. D. Libby and Mr. McHolmes, Kalamazoo Vegetable Parchment Company; C. C. Schneider, Hawthorne Paper Company; W. K. Kidder, Allied Paper Mills; W. J. Lawrence, Arthur Dreshfield, E. J. Turner and Van Cox of the Western Paper Makers Chemical Company; E. Frank Whittington, Standard Paper Company; Elbert Milham, Bryant Paper Company; Charles B. Barton, Jr., Michigan Paper Company; V. Heinmuller, Kalbfleisch Corporation; and R. G. Macdonald, secretary of TAPPI.

George S. Witham, Jr., Gets Patent

HUDSON FALLS, N. Y., April 2, 1928.—George S. Witham, Jr., former general superintendent of the Union Bag and Paper Corporation and inventor of many improvements to pulp and paper mill machinery, has just been issued a patent by the patent bureau at Washington on a device for use with papermaking machines. The latest patent granted the local man is for a device in which the liquid stock level may be maintained above the nozzle, slice and web forming plant. The patent has not been assigned.

Mr. Witham, who resigned his position with the Union Bag Corporation several months ago and is now identified with the Stevens & Thompson Paper Company, of Middle Falls and Hoosick Falls, has invented numerous improvements in pulp and paper mill equipment which are now in use. Among these is the Witham high speed beater which has been in successful operation for a year or more.

May Build Plant in Seattle

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., March 29, 1928.—The Bates Valve Bag Company, of which Ray S. Brown is Northwest manager, will probably build a pulp plant in Seattle or vicinity within the next year, according to report coming from that section recently. At a March meeting of the Building Material Dealers' Association of Seattle, the use of the Bates bag was indorsed for packing cement, mortar, plaster, etc., and it seems probable that this product will have a plant of its own.

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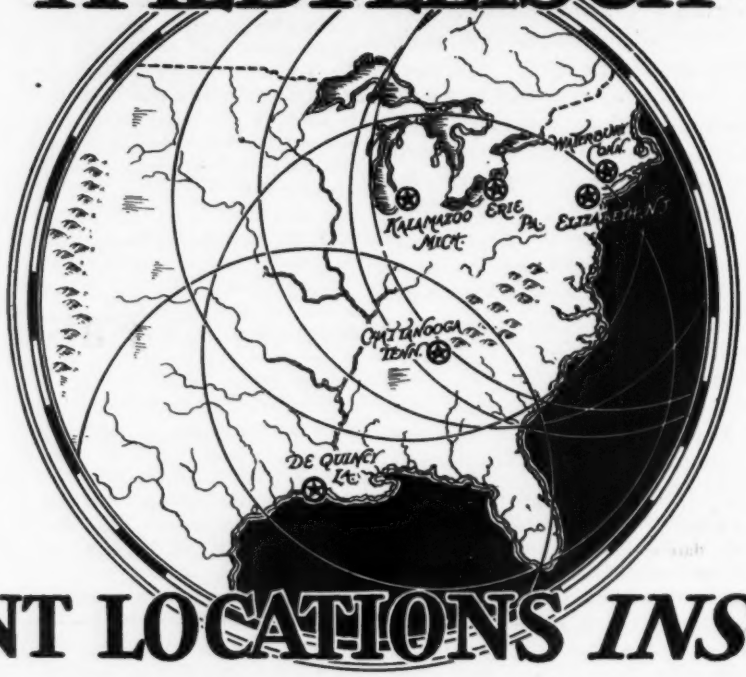

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

A Note on the Early History of Papermaking

By Jacob Papish

Through the generosity of the late Charles William Wason the library at Cornell University has come in possession of a Russian manuscript entitled *Information Received from the Mongolian Lama Tsordji.* (See Fig. 1.) The name of the writer appears neither on the title page nor anywhere else in the manuscript. The same is to be said about the date of the book, although in this respect there is ample evidence for the assertion that the book was written some time during the seventeenth century. With the exception of the last few pages devoted to a description of a contemporary Chinese temple at Kiachta, the manuscript deals mainly with the customs and religious practices of the Mongols and Tibetans as related by Lama Tsordji.

The term *Tunguses* was in vogue in Russia during the seventeenth century for designating the Tibetans[1] and it is in this sense that the word is used throughout the manuscript. According to

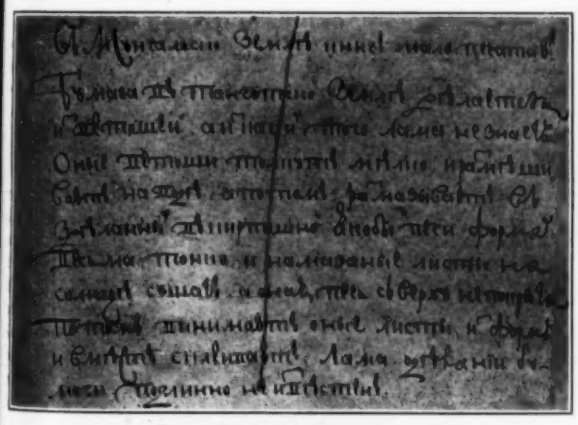

FIG. 2
Description of process for making paper.

Lama Tsordji many books were found in the Tibetan temples but few in the Mongolian. There is no statement to the effect that these books were regarded sacred, but the lamas were not permitted to eat meat during services so as not to handle the books with greasy fingers. In a short passage (Fig. 2) Lama Tsordji tells that "in the Tungusian Land paper was made from rags, the varieties of which were unknown to him. The rags were macerated, mixed with water and spread out thinly in oven-like forms made of brick. These forms had no covers, and the paper was dried by exposure to the sun. The sheets were then removed and glued together."

Judging from the subject matter of the manuscript it is safe to assume that the art of paper making was known to the Tibetus for perhaps centuries before the communications of Lama Tsordji were recorded by the unknown writer. The method is similar to the one employed by the Chinese who are credited with the invention of paper.[2] During the reign of Kublai when lamaism

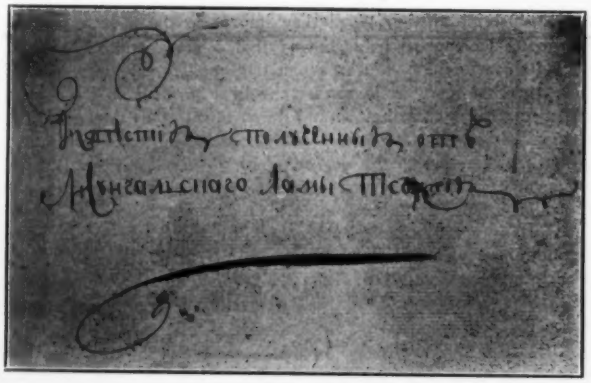

FIG. 1
The title of the manuscript.

was adopted as the state religion, the Tibetans came in contact with the Chinese and it is possible that they acquired from them at that time the art of paper-making.

[1] See John F. Beddely: *Russia, Mongolia, China,* Vol. 1, p. 139. Macmillan and Company, Limited, London. 1919.
[2] See Thomas Francis Carter: *The Invention of Printing in China,* p. 3. Columbia University Press, New York. 1925.

Power Pulp Sampler

The Thompson Manufacturing Company of Lancaster, N. H., announces a new model of the Crossley Pulp Sampling Tool. This tool cuts a disc of approved size and may be attached to any portable electric drill. It delivers discs from side of the cutter and will cut wet, baled ground wood as well as the dried sheets. The cutting edge is the same as that on the smaller tool which is now used largely for routine work and the Fidalgo shredded pulp.

In ordering the tool it is necessary to state size and type of shank. The larger size now put on the market is approved by the Joint Committee on Moisture Testing for all cases where discs are standard for referee tests.

In addition it is claimed to be possible to obtain accurate sampling of folded or pressed wet laps with less labor and in shorter time than the usual methods of cutting.

Precipitants in Sizing*

By E. Oman

In the sizing of paper with rosin, aluminum sulphate (alum) is used as the precipitant. In the literature may be found numerous references to the action of various salts in sizing, and also to the replacement of alum, in whole or in part, by other salts. In this connection it may be of interest to recall the attempts made during the war, especially in Finland and Germany, to find a substitute for alum. The partial replacement of alum with sodium bisulphate seems to have been the best solution of the problem. It may be generally known that about 15 years ago attempts were made in Germany to size paper with acid and a rosin emulsion, without the addition of alum or any other salt. That all salts have a definite, though frequently small, fixing action of the rosin during sizing may not be so generally known.

Sizing, as is well known, is accomplished by adding to the pulp, which has been brushed out in the beater, a certain amount of alum, followed by the rosin emulsion. Various theories have been advanced to explain the mechanism of the sizing action. I have previously shown[1] that the progress of the action is (1) the fibers become positively charged due to adsorption of the aluminium sulphate, and (2) the negatively charged rosin is taken up by the positively charged fiber. The rosin thus arranges itself as a more or less enveloping layer over the entire surface of the fibers. How complete this covering of the surface may be is dependent upon how finely divided the rosin is, i.e. upon the degree of dispersion of the rosin.

Other Salts May Be Used

As previously stated, other salts than aluminum sulphate may be used as precipitants, provided they impart to the fiber a positive charge. I have previously shown[2] that a great number of salts are suitable; ferric salts are particularly good precipitants. But if it is true that many salts render the fiber positive in its charge, it is also natural that they should do so in different degrees. The fiber will be enabled to take up the negatively charged rosin entirely in proportion to the degree of its positive charge. But the rosin varies also in the degree of its negative charge, which will naturally influence the amount which may be taken up by the fiber. Besides a number of other factors, the charge on the rosin is undoubtedly due to its degree of dispersion, i.e. upon the particle size. Upon the addition of salts to the colloidal suspension of rosin in water the particles become larger and larger with increasing concentration of the salt and the degree of dispersion of the rosin diminishes. The negative charge thus diminishes, which causes a more ready fixation of the rosin on the fiber. The power of the salt to flocculate the colloidal rosin may thus have a specific action in the sizing of the fiber.

Electrostatic Effects

This investigation was undertaken to show the degree of sizing obtained with various salts as precipitants, or which salts may be used as substitutes for alum. It must be clearly kept in mind, however, that the values given here are valid only for the particular sample of cellulose with which we made the tests. It is quite conceivable that other types of pulp will give different results to those presented here. For instance, we can readily see that different pulps, when broken up and suspended in water, may be more or less negatively charged and hence require more or less salt in order to establish the required positive charge.

If the rosin is very finely dispersed, and so prepared that its negative charge is large, only a part of it will be taken up by the positively charged fiber. Only when the degree of dispersion is diminished (enlargement of particle size) by the addition of salt is all of the rosin taken up by the fiber. If the concentration of the salt in the water suspension is decreased later, say by dilution, a part of the rosin will pass from the fiber to the water—the fixation of the rosin upon the fiber is reversible.[3] We may consider that the fixation of the rosin upon the fiber is dependent partly upon the degree of dispersion of the rosin and partly upon the charge upon the fiber and upon the rosin. If, therefore, a precipitant is used which renders the fiber only feebly positive, a rosin is required which is of a low degree of dispersion, so that its negative charge is not great. The following experiments attempt to throw more light on this question.

Confirming Experiments

The experiments were made in the following manner. The cellulose used was a bleached sulphite pulp. For each series of determinations about 200 grams air dry pulp were weighed out and brushed out in a small beater. The suspension thus obtained was then divided into a number of portions each containing 20 grams air dry pulp. Distilled water was used throughout the entire series. To each sample was added a predetermined amount of the respective salt and the suspension was well agitated. The rosin emulsion was now added, such an amount being used that the total rosin was equal to 2 per cent of the weight of the pulp. The consistency of the pulp was about 2 per cent. The sample was allowed to stand two days during which period it was agitated several times. The rosin particles were completely taken up by the fiber and the water became completely clear during this period. The amounts of the various salts were so low that no flocculation of the rosin was possible. When all the rosin had been taken up by the fiber the sample was diluted so that the consistency became about 1:500 (0.2 per cent). Some salt was always added to the water used for the dilution to prevent the rosin from going back into the water. The suspension was now used for the preparation of hand sheets. The sheets were dried by pressing between filter paper at room temperatures, and were smoothed on one side by pressing with a metal plate.

Rosin Suspension

The rosin suspension, which contained about 10 grains per liter of total rosin, was prepared by cooking up the rosin with soda so that approximately 50 per cent remained as free rosin, and was highly dispersed. Upon dilution of the rosin suspension when it is added to the sample the greater part of the combined rosin becomes free through the hydrolysis of the sodium salt. The sulphite cellulose acting as a weak acid because of its amphoteric properties,[4] eventually frees all the combined rosin. The rosin added in the suspension acts entirely as though it were free rosin.

The degree of sizing of the samples was determined by the method previously described.[5] This consists of drawing ink lines of different width on the paper with a drawing pen. The lines are examined under the microscope at 15-20 magnifications and the spreading of the ink determined. The width of the line is measured by means of an ocular micrometer in a sufficiently large number of places to give a good average value. The setting of the pen is also determined by means of the microscope. The spread, i.e. the total width minus the distance between the points is calculated as per cent of the distance between the points. In the graphs the setting of the pen is plotted on the abscissae and the spread in terms of per cent of the pen setting, on the ordinates.

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* Svensk Pappers-Tidning No. 22, 23 (1927). Translated by Clifford E. Peterson, member TAPPI. This investigation was carried out by G. Pihl as the subject for a thesis at the Kungl. Teckn. Hogskolan. V.T. 1927.

[1] Sizing of paper with rosin (1925); Theorie der Harzleimung, Papier Fabr. (1926) s. 49.

[2] Sv. Pap. (1926) No. 4.

[3] Pap-Fabr. (1926) h. 4, s. 27.

[4] Papir-Journ. (1927) No. 7, 8, 9.

[5] Sv. Pap. (1927) No. 20.

Sizing with Chlorides

The salts used were the chlorides of ammonia, sodium, potassium, magnesium and calcium. The results are presented numerically in Table I and graphically in Fig. I.

TABLE I

		Conc.		Line 1			Line 2			Line 3		
Salt	Amount of salt in sample Grams	% In sample	% In water	Pen setting	Total width	% Spread	Pen setting	Total width	% Spread	Pen setting	Total width	% Spread
NH_4Cl	7.3	0.73	0.2	17	27.9	65	28	42.3	52	37.5	51.5	38
NaCl	8.0	0.80	0.26	17	31.3	86	28	45.5	63	37.5	58.7	57
K Cl	10.2	1.02	0.18	17	33.8	98	28	55.3	98	37.5	65.0	74
$MgCl_2$	7.0	0.76	0.19	17	35.7	109	28	54.2	94	37.5	61.7	64
$CaCl_2$	7.6	0.76	0.19	17	32.0	88	28	48.5	73	37.5	62.0	66

It is evident that in all cases some action is secured in precipitating the rosin upon the fiber NH_4Cl exhibiting the greatest tendency in this regard. It should be noted that in all cases the salt concentration is very low, being only about 0.2 per cent in the diluted suspension; with higher concentrations the sizing would have been better.

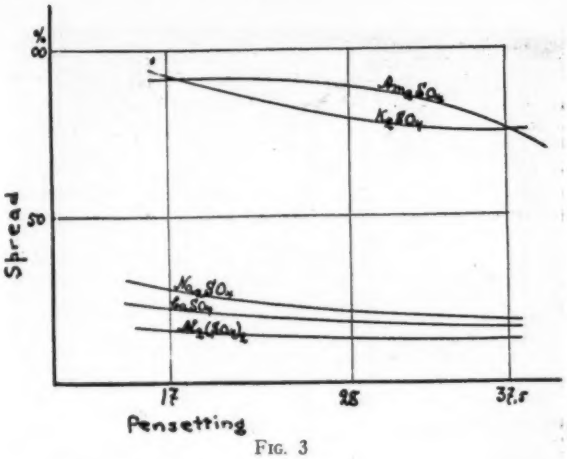

FIG. 3

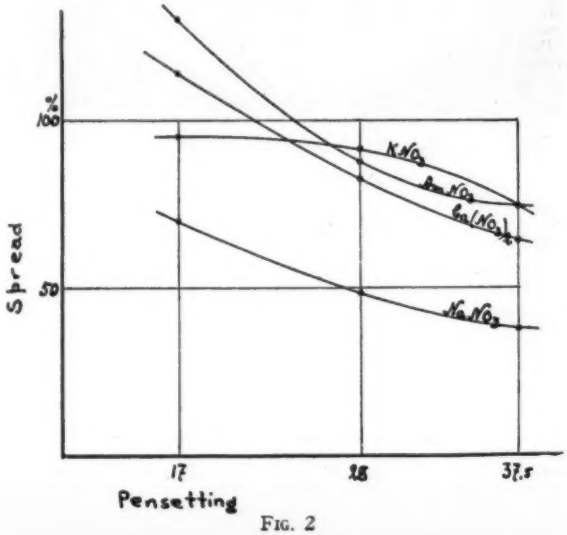

FIG. 2

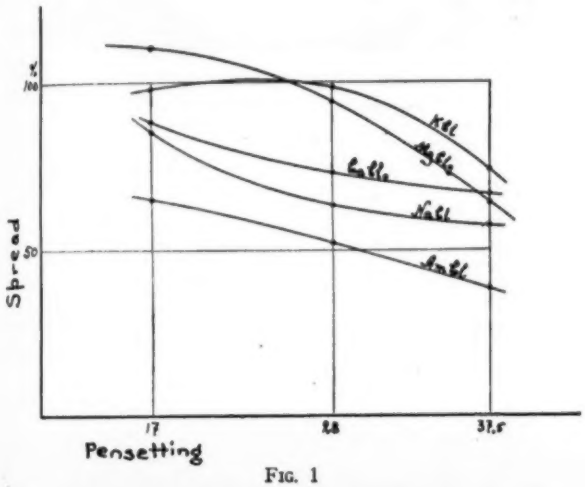

FIG. 1

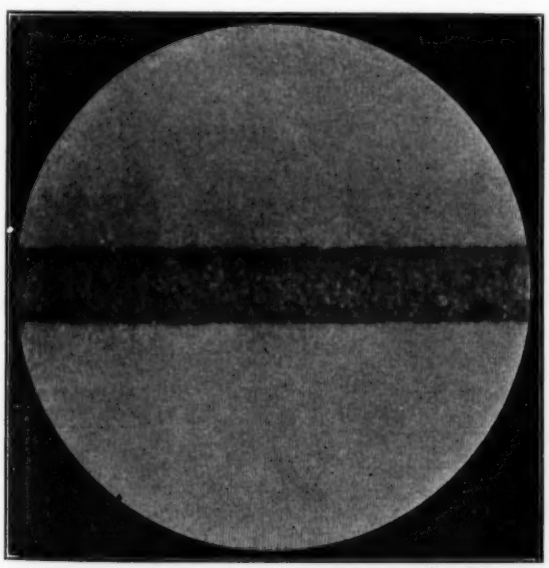

FIG. 4
Aluminum Sulphate x 16.

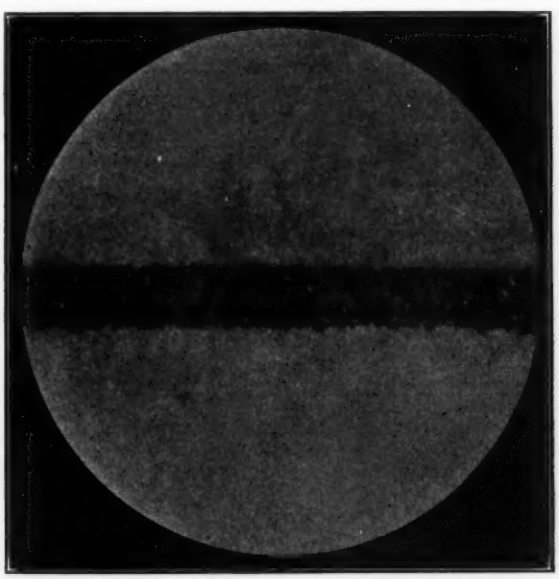

FIG. 5
Calcium Sulphate x 16.

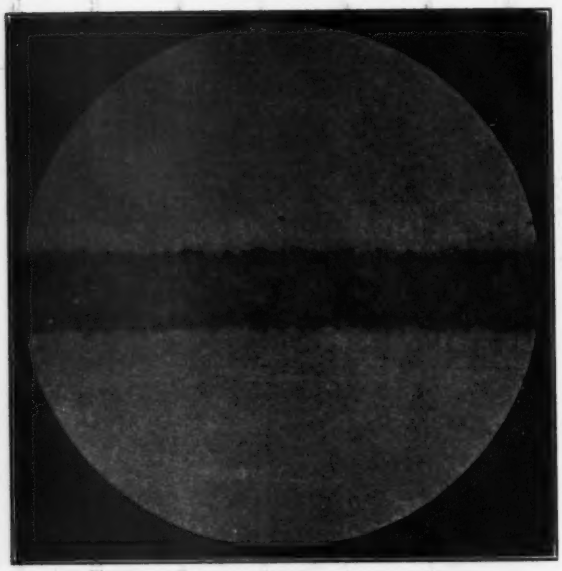

FIG. 6
Sodium Sulphate x 16.

Sizing with Nitrates

The salts used were the nitrates of ammonia, sodium, potassium and calcium. The results are given in Table II and Fig. 2. It is noticeable that $NaNO_3$ is considerably better than any of the other nitrates used.

Sizing with Sulphates

The salts used were the sulphates of ammonia, sodium, potassium, calcium and aluminum. The results are presented in Table III and Fig. 3.

Sodium and Calcium Sulphates

Particular attention is called to the fact that it is not only aluminum sulphate which shows to advantage in the sizing process. Both sodium and calcium sulphates exhibit excellent powers of fixing the rosin so that a well sized paper is obtained. In order to illustrate this point Figs. 4, 5, and 6 are presented. They are photomicrographs of the ink lines on the papers sized by the action of these three salts. The magnifications are about 16 diameters and the width of the lines is about 0.75 mm. for the sodium and aluminum sulphates, and about 0.50 mm. for the calcium salt. Of these salts sodium sulphate is of considerable interest. It is an inexpensive salt, and if it can be used instead of the aluminum salt it would show an economical advantage. In order to ascertain more fully the action of sodium sulphate a series was carried out varying the concentration of the salt.

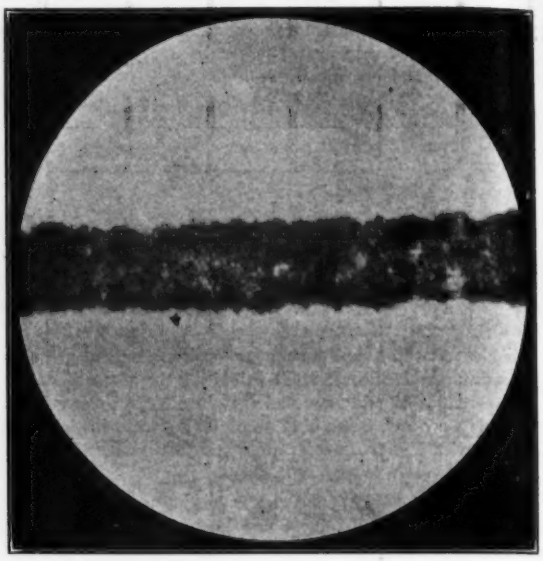

FIG. 8
Sodium Sulphate, 0.02 per cent x 16

TABLE II

Salt	Amount of salt in sample Grams	Conc. % in sample	Conc. % in water	Line 1 Pen setting	Line 1 Total width	Line 1 % Spread	Line 2 Pen setting	Line 2 Total width	Line 2 % Spread	Line 3 Pen setting	Line 3 Total width	Line 3 % Spread
NH_4NO_3	10.9	1.09	0.27	17	39.0	130	28	52.5	88	37.5	65.4	74
$Na\ No_3$	11.6	1.16	0.29	17	28.8	70	28	41.7	48	37.5	51.2	37
KNO_3	13.7	1.37	0.34	17	35.2	96	28	53.5	91	37.5	65.2	74
$Ca(No_3)_2$	11.2	1.12	0.28	17	36.4	114	28	50.7	82	37.5	61.1	64

TABLE III

Salt	Amount of salt in sample Grams	Conc. % in sample	Conc. % in water	Line 1 Pen setting	Line 1 Total width	Line 1 % Spread	Line 2 Pen setting	Line 2 Total width	Line 2 % Spread	Line 3 Pen setting	Line 3 Total width	Line 3 % Spread
$(NH_4)_2SO_4$	9.2	0.92	0.23	17	32.7	92	28	51.0	89	37.5	62.3	74
Na_2SO_4	9.7	0.97	0.24	17	21.8	28	28	33.7	21	37.5	43.6	17
K_2SO_4	12.2	1.22	0.29	17	32.8	93	28	44.0	57	37.5	67.5	80
$CaSO_4$		dil. soln.		17	20.7	22	28	32.0	18	37.5	43.2	16
$Al_2(SO_4)_3$	7.8	0.78	0.20	17	19.7	16	28	30.3	13	37.5	42.2	13

The preparation of the samples and the sizing was conducted as before. The amount of rosin was 2 per cent of the weight of the pulp. The results are given numerically in Table IV and graphically in Fig. 7.

Figs. 8 and 9 show the photomicrographs for the samples when

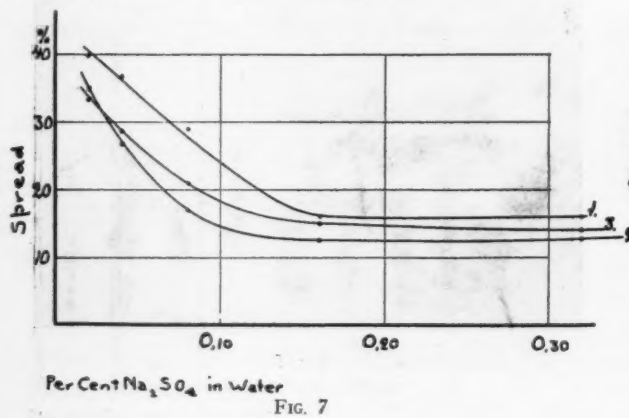

FIG. 7

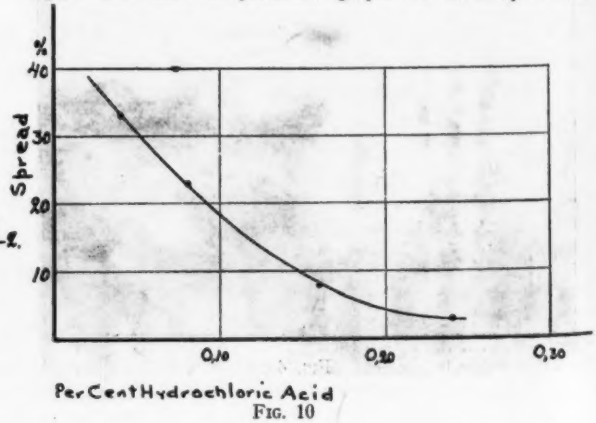

FIG. 10

0.02 per cent and 0.16 per cent, respectively, were used in the diluted water suspension. It is evident that the concentration of the salt has a definite effect on the degree of sizing of the paper. It should be pointed out that in each case all of the rosin was precipitated on the fiber. The differences in the degree of sizing is therefore not dependent upon the amount of rosin on the surface of the fibers, but rather upon the manner in which the rosin is fixed on the surfaces.

Experiments were made on pulps which had undergone different amounts of beating in order to determine if it was merely by chance that such good results were obtained with sodium sulphate. As before, increasing concentration of salt always effected an increase in the degree of sizing, but for one and the same concentration the degree of sizing varied with the amount of beating. This is completely analogous to what occurs in sizing with alum.

It is certainly not inconceivable that sodium sulphate can be used instead of alum. But it is not nearly as efficient as alum i.e. considerably greater quantities are required for the same degree of fixation. This means that the white water must contain a considerably higher concentration of sodium sulphate to secure satisfactory sizing. But in the manufacture of a paper that must be free from any acid, or where the water must not have a high degree of acidity, it may be of distinct advantage to fix the rosin with sodium sulphate. It would also be possible to use a small amount of alum to impart the positive charge to the fibre and then precipitate the rosin by means of sodium sulphate which would remain in the circulation water.

Sizing with Acids

It was stated in the beginning of this paper that for a long time interest has been exhibited in the replacement of alum with acids. Some articles in the literature even intimate that actual mill scale production has been carried on using an acid for the precipitation of the rosin on the fibre. In these cases it appears that there is no difficulty in this connection, but that the chief fault is the subsequent action of the acid on the paper.

In order to test the capacity of acids for fixing the size upon the fibres, a series of tests, similar to those given above, were made with sulphuric and hydrochloric acids for comparison with the previously discussed salts. The tests were made exactly as before, using 2 per cent rosin on the weight of the pulp.

The acid content was calculated on the basis of the amount of water used, and the water for dilution was acidified to the same extent as the water suspension in which the sizing was conducted. It should be noted, however, that the cellulose, due to its amphoteric properties, consumes some of the acid by reacting as a base. The hydrogen ion concentration of the water is therefore somewhat less than that calculated from the amount of acid added.

The samples were allowed to stand for 12 hours, during which period they were occasionally stirred. The sheets were made and tested as before, The results are given in Tables V and VI. In Fig. 10 is shown graphically the results for line 1 with hydrochloric acid. Figs. 11 and 12 are photomicrographs showing the effects with 0.04 and 0.24 per cent, respectively, of sulphuric acid in the water. Figs. 13 and 14 show the same thing for hydrochloric acid. These tests show that an extremely high degree

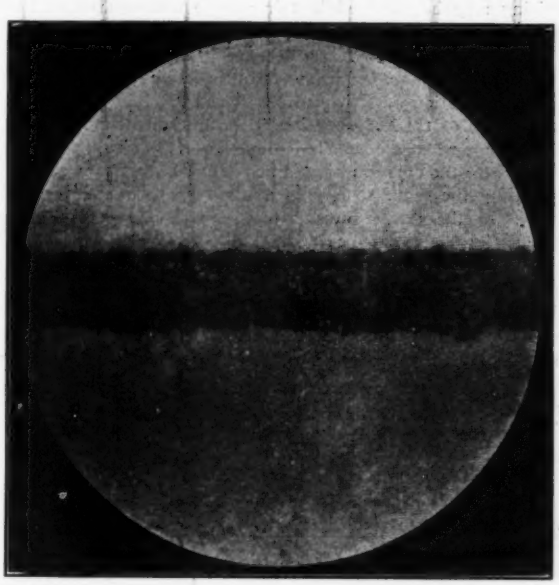

FIG. 11
Sulphuric Acid, 0.04 per cent x 16.

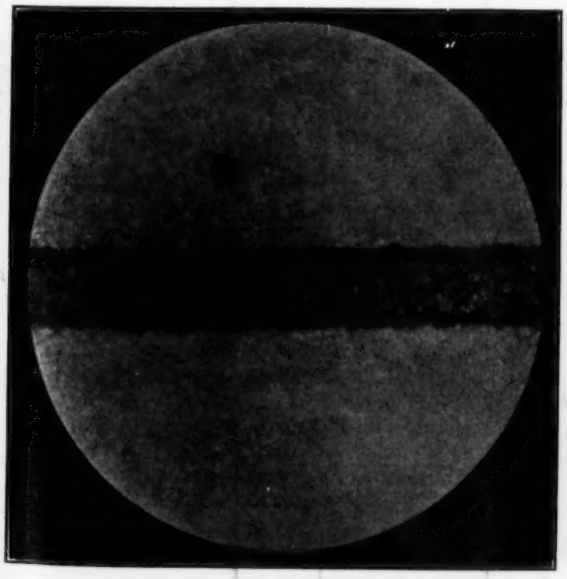

FIG. 9
Sodium Sulphate, 0.16 per cent x 16.

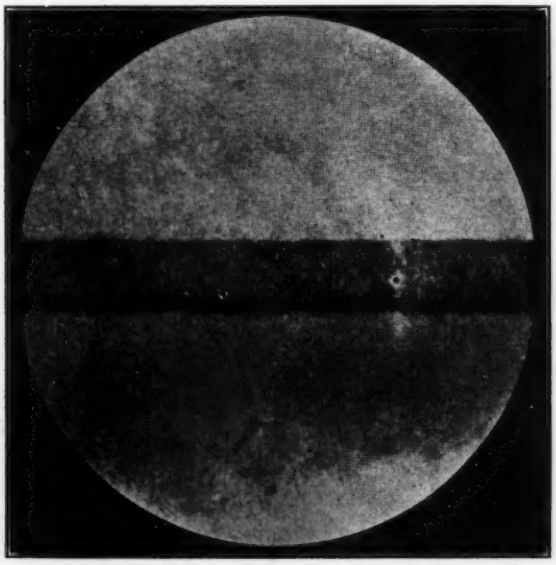

FIG. 12
Sulphuric Acid, 0.24 per cent x 16.

of sizing may be obtained if fairly large amounts of acid are used. As previously pointed out a part of the acid added to the water neutralizes the cellulose, decreasing the hydrogen ion concentration of the solution below the calculated value. It is only when the solution is fairly concentrated that any appreciable retrogression of the hydrogen ion concentration occurs. At great dilutions, e.g. when the sample is diluted for the making of hand-sheets, where the concentration is about 1:500, the amount of acid neutralizing the cellulose is only a small proportion of the acid present. In the dilute suspension with 0.04 per cent acid the hydrogen ion concentration is about 0.01 N. But even with this high hydrogen ion concentration we do not secure satisfactory sizing. At a hydrogen ion concentration of 0.05 N to 0.02 N satisfactory results are obtained. This acidity is considerably greater than is generally obtained when sizing with alum, where the water shows a pH of 4, i.e. 0.0001 N. Thus, in order to replace alum with acid as a precipitant, or mordant, the water must be more than 100 times as acid to secure the ordinary amount of sizing. It may be assumed that it is this high acidity that militates against the commercial adoption of this method.

We have thus seen that many salts act, at least to some degree, as mordants in the sizing process. How shall we explain this? First of all, we must consider that in all these experiments all

TABLE IV

Salt conc. in sample	Salt conc. in sample and in dilution water	Line number 1			Line number 2			Line number 3		
% of pulp	%	Pen setting	Total width	Spread %	Pen setting	Total width	Spread %	Pen setting	Total width	Spread %
1	0.02	17	23.8	40	28	37.7	35	38	51.0	34
2	0.04	17	23.3	37	28	35.5	27	38	49.0	29
4	0.08	17	22.0	29	28	32.7	17	38	46.0	21
8	0.16	17	19.8	16	28	31.5	12	38	43.8	15
16	0.32	17	19.8	16	28	31.7	13	38	43.5	14

TABLE V
SULPHURIC ACID

Amount of acid in %		Line 1			Line 2			Line 3		
Basis pulp	Basis water	Pen setting	Total width	Spread %	Pen setting	Total width	Spread %	Pen setting	Total width	Spread %
1	0.04	17	20.3	19	22	25.8	17	37	43.3	17
2	0.08	17	19.3	14	22	23.3	6	37	40.0	8
4	0.16	17	18.5	9	22	24.5	11	37	39.3	6
6	0.24	17	18.2	7	22	23.5	7	37	38.7	5
8	0.32	17	18.5	9	22	23.7	8	37	38.6	4

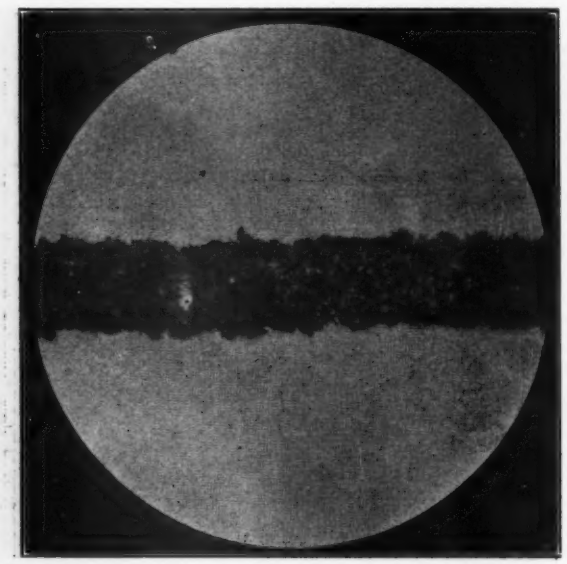

FIG. 13
Hydrochloric Acid, 0.04 per cent x 16.

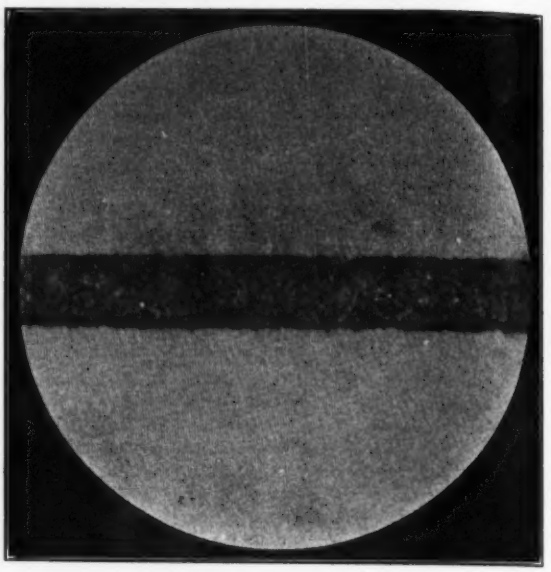

FIG. 14
Hydrochloric Acid, 0.24 per cent x 16.

TABLE VI
HYDROCHLORIC ACID

Amount of acid in %		Line 1			Line 2			Line 3		
Basis pulp	Basis water	Pen setting	Total width	Spread %	Pen setting	Total width	Spread %	Pen setting	Total width	Spread %
1	0.04	18	24.0	33	29	33.7	16	40	46.9	17
2	0.08	18	22.2	23	29	30.8	6	40	44.0	10

of the rosin was taken up by the fiber. The variations in sizing depend therefore not upon the different amounts of rosin upon the surface of the fiber. Neither does it depend upon the rosins covering power on the basis of the different sizes of the particles. Variations in sizing must therefore be dependent upon the manner in which the rosin particles are attached to the surface of the fibers. We can conceive that if the rosin particles lie fairly loosely upon the fiber poor sizing will be obtained. On the other hand, if the particles are strongly attached to the fiber good sizing will take place. The different degrees of attraction which are found between the fiber and the rosin particles with the use of different precipitants must be attributed to a variation in the electrical charges on the fiber and on the rosin. The negative charge of the particle undoubtedly decreases with the increased concentration of salt in the water, and the positive charge of the fiber is evidently increased with rising concentration. Sulphite cellulose is negatively charged, when suspended in water, because of the fact that it gives off hydrogen ions. Since the hydrogen ion concentration in water increases with the addition of acid the hydrogen ions are again impressed into the cellulose, thus decreasing the negative charge. With very great increases of hydrogen ion concentration in the water we have the possibility of impressing such a large amount of hydrogen ions in the cellulose that it can become positively charged. It then attracts the rosin so powerfully that the fiber becomes sized. This explanation regarding charges is in complete agreement with the conditions found for non-metallic bodies in general; their positive charges rise with increasing hydrogen ion concentration.

If we apply this explanation to the action of salts we come to the following conclusions. When the cellulose is suspended in a salt solution hydrogen ions split off from the cellulose and it becomes negatively charged. But the positive ions of the salt go into the cellulose replacing the hydrogen ions. The greater the concentration of these positive ions in the water, the more of them will be impressed into the cellulose and the negative charge is thereby decreased.

[9] J. Perrin, Journ. Chim. Phys. *2*, 601; *3*, 50 (1904 o. 1905).

The McLaurin Gummed Tape Tester

For years William McLaurin recognized the need for a reliable measuring device to test the relative values of gummed tapes. After studying the matter over carefully he built an instrument which embodied his ideas and used it to great advantage in comparing all qualities and makes of gummed tape. This instrument for the want of a better name, he called the "McLaurin Gummed Tape Tester."

With the first tester built by Mr. McLaurin shown in Fig. 1, the results were reliable, but unfortunately the method was very slow.

Believing that he had sufficiently proved his idea practical and that further refinements must be made by experienced instrument makers, Mr. McLaurin delegated a well known Philadelphia firm of instrument makers to perfect his ideas. After a great deal of experimentation and development, the present McLaurin Gummed Tape Tester, shown in Fig. 2, was placed on the market. The particular advantage of the present tester is: tests can be made quickly and the results secured are consistently accurate.

The McLaurin Gummed Tape Tester measures the adhesive properties of gummed sealing tapes and other glued tapes. This tester definitely indicates in a most convincing manner the inferiority of low grade and cheap glues.

The McLaurin Gummed Tape Tester is sturdily built, designed to meet the needs of those manufacturers and users of gummed tapes who recognize the necessity for establishing a reliable code of standards for testing all gummed tapes.

The testing of glues is now an established laboratory practice which is productive of positive and accurate results. Particularly within the past few years, the introduction and standardization of methods for testing glues, sanctioned by the National Association of Glue Manufacturers, has resulted in establishing standards of quality for glue which are accurate and reliable. One very important quality in glue, namely:—its resistance to slippage after being moistened and applied to paper and fabric, has never been accurately determined. Heretofore, only crude methods have been

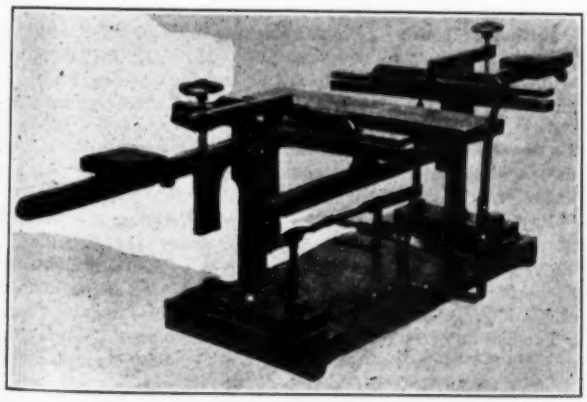

Fig. 1

attempted in an effort to determine a standard of quality and a reliable test to measure the adhesive qualities of glue, after being moistened and applied to paper and fabric.

In spite of the many precautions now exercised in applying glue to paper and cloth, it is quite generally the experience of every one connected with the manufacture of all varieties of gummed tapes that quite often these manufactured products are produced with poor sticking qualities. Usually, only the gummed products with exceedingly poor adhesive qualities are readily detected. Now, with the McLaurin Gummed Tape Tester, the manufacturer of gummed tapes can set a standard and quickly make tests to determine if the adhesive qualities of all manufactured products are maintained at the established standard.

Manufacturers of gummed tapes can purchase good glues and maintain care in production, but cannot have any definite assurance that quality of products as applied to adhesive strength is being maintained, unless a testing instrument is available that will definitely establish the quality of the products.

Purchasers of gummed tape also, are without any assurance

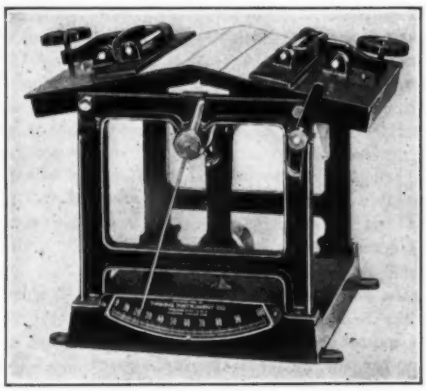

Fig. 2

whatever that the material purchased is of good quality or even of uniform quality. It is in filling this particular need that the McLaurin Gummed Tape Tester has one of its most important uses and is of the utmost advantage. A series of tests easily and quickly conducted with the McLaurin Gummed Tape Tester serves at once to determine the adhesive qualities of good glues or to detect the inferiority of low-priced glues.

The McLaurin Gummed Tape Tester measures the amount of resistance to a constant pull, which moistened glue exerts just prior to a complete set. Practically every good grade of glue after setting, is stronger than paper and in some instances is stronger than some fabrics.

As an illustration of how this tester helps take the "guesswork" out of either buying or selling gummed tape, a recent test may be quoted, in which three rolls of tape from three different manufacturers were tested.

These tapes all sold at about the same price, but on testing them, the first roll tested showed an average strength of 25, the roll supplied by the second manufacturer showed an average strength of 58 and the roll supplied by the third manufacturer showed an average strength of 73.

On the buying side of the question, the customer who bought the first tape tested was paying three times too much for his tape.

The operation of this tester is simplicity itself.

The tester is set in a level position and adjusted for zero setting, indicated by the zero position on the scale of the tester. The pointer is then moved to a position in contact with the carrier attached to the pendulum shaft. Two sheets of good grade kraft paper, cut to a standard length, are inserted and held fast by two clamps. A moistened strip of gummed tape is attached to the kraft paper. A short space of time is then allowed for partial setting of the glue. Then the pendulum release lever, at right of tester, is tripped. The pendulum exerts a constant pull on the test piece. The resistance value of the moistened glue at the critical period is indicated on the scale.

The actual time to make the test only requires 15 seconds.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Paper Making Industry

Clarence J. West, Chairman

Mechanical Process

Process for the Production of Mechanical Pulp. Naamlooze Vennootschap Handelmaatschappij Fibra. Eng. pat. 267,107. Logs, boards, wood shavings or wood waste, holding its natural moisture content, is cut up or otherwise comminuted, then passed to centrifugal machines or disintegrators where it is further subdivided. Broken fibers, sand and other impurities are next separated in a sifting machine. Further subdivision into coarse bundles of fibers is next effected in a dry refiner wherein heat is generated by friction, the natural content having been previously restored if desired. Enough water to make a thick pulp is added, and the pulp is pumped to a wet refiner. Coarse material still present is screened out and returned to the stock coming from the dry refiner. The screened pulp may be either dried or sent direct to the beater for its conversion into paper.—A. P.-C.

Truing Lathe for Wood Pulp Grinders. J. J. Warren. U. S. patent 1,642,053, Sept. 13, 1927. The novel features of this truing lathe and its mounting are (1) it extends beyond the grindstone housing on either side, so that the carriage of the lathe can be run completely outside the housing for adjustment; (2) the entire lathe can be shifted sideways so that the stone can be trued even when worn beyond the original limit of the lathe adjustment; (3) a narrow door extends across the width of the housing making it possible to follow the carriage across the face of the stone. —A. P.-C.

Apparatus for Feeding Magazine Grinders. P. Priem. U. S. pat. 1,644,148, Oct. 4, 1927. The feeding apparatus comprises a pair of parallel belt conveyors on opposite sides of the magazine. The belt members comprise flexible chain, band or rope belts to which spaced cleats are secured. These belts are supported on upper and lower sets of driving and guide wheels with the driving wheels engaging the cleats in a driving relation, and between the driving wheels are sets of supporting anti-friction rollers which are arranged back of the sections of the belt which engage the charge of logs which are fed into the machine. Instead of securing the cleats to the belts by pivotal connections, as is usually done, they are permanently secured to the belts and arranged with free yieldable intervening sections which allow the chains, bands or ropes forming the belt to follow closely on the driving or guide wheels. Various embodiments of such arrangements are described in the specifications.—A. P.-C.

Steaming of Wood for the Production of Steamed Groundwood R. Blaschke. Fr. Pat. 624,224. Steam at a pressure of about 4 atmospheres is admitted gradually and only for short periods at a time to the boiler; the wood is allowed to remain in the boiler for 5 to 10 hours without removing any of the condensation products, and it is finally subjected for 3 to 5 hours, or even more, to the action of water, with or without addition of chemicals and either at atmospheric or higher pressure. By this treatment the wood absorbs more than its own weight of water, the fibers remain appreciably lighter in color than when subjected to the usual steaming process, and the groundwood produced after this treatment gives an exceptionally strong paper or a flexible board of a soft brown color.—A. P.-C.

Sulphite Process

Rotary Sulphur Burner. L. Gillett, assignor, to General Chemical Co. U. S. pat. 1,638,992, Aug. 16, 1927. The inlet and outlet connections of the burner are constructed in such a way as to practically eliminate leakage of air or of the burner gases, so that the burner can be operated either under pressure or under vacuum. If the sulphur is introduced in the solid form the inlet pipe is provided with a screw conveyor of almost the same diameter as the inside of the pipe, and the solid sulphur acts as seal; the air is introduced through an inlet pipe surrounding the sulphur feed, helping to cool it and prevent premature melting of the sulphur in the inlet, which would break the seal. If the sulphur is introduced in the liquid form, the inlet pipe passes into the burner at the axis of the gas outlet. Inside the main shell of the burner is an inner drum of slightly smaller diameter, provided with a number of rolling rings on which it supported for rotation on the inner drum likewise to rotate, and the molten sulphur within the burner adheres to the walls of both casings, thus exposing a large area of the sulphur and greatly increasing the capacity of the burner.—A. P.-C.

Liquor for Treating Plant Material. F. K. Fish, Jr. Can. pat. 269,168, Mar. 22, 1927. A liquor for treating plant material is made by dissolving soda ash in water charged with volatile and other solvent extractives of wood, passing sulphur dioxide into the solution, and then incorporating sulphur into the solution at a temperature above its boiling point and at elevated pressure. —A. P.-C.

Process and Apparatus for Making Pulp. F. K. Fish, Jr. U. S. pat. 1,632,467, June 14, 1927. After subjection to a vacuum treatment the material is digested under pressure in heated sulphite solution or other suitable digesting liquor, with a space above the body of the liquor; the pressure is suddenly reduced and the liquor drawn off by the reduction of pressure is led to a closed tank where it is heated whence it is returned to the digester —A. P.-C.

Method of Making Sulphite Cooking Liquor. G. A. Richter, assignor to Brown Co. U. S. pat. 1,637,353, Aug. 2, 1927. A raw acid liquor of relatively low free sulphur dioxide content is treated with a gas rich in sulphur dioxide which is passed upwardly through inert packing material into a series of pools of the liquor which are simultaneously circulated downwardly through the packing material in a counter-current system, to obtain a liquor rich in free sulphur dioxide.—A. P.-C.

Production of Pulp with High Alpha Cellulose Content. G. A. Richter, assignor to Brown Co. U. S. pat. 1,632,802, June 21, 1927. Fiber such as raw sulphite pulp is treated with a solution of caustic soda or with other suitable chemical solution into one of the intermediate baths.—A. P. C.

Production of Pulp with High Alpha Cellulose. G. A. Richter and M. O. Schur, assignors to Brown Co. U. S. pat. 1,599,489, Sept. 14, 1926; G. A. Richter, assignor to Brown Co. U. S. pat. 1,602,553, Oct. 12, 1926; Paper Trade J. 85, No. 8, 48-49 (Aug. 25, 1927). No. 1, 599, 489. Sulphite Pulp is treated with a small quantity of oxidizing agent, preferably chlorine, insufficient to effect bleaching, and is then boiled with milk of lime, either under pressure or, preferably, in an open tank. No. 1,602,553. Sulphite pulp is subjected to a treatment with black liquor from the alkaline digestion of wood or other vegetable material.—A. P.-C.

Sulphur Recovery from Relief Gases and Liquor. Geo. A. Richter, assignor to Brown Co. U. S. pats. 1,599,488, Sept. 14, 1926, and 1,616,703, Feb. 8, 1927; Paper Trade J. 85, No. 8, 45-48 (Aug. 25, 1927). The relief liquor and gas from the digesters are passed through a separator in which the greater portion of the gas is separated from the liquor. The gas is then cooled and

sent to the recovery tower. The relief liquor from the separator is treated with an excess of powdered calcium carbonate which precipitates the residual sulphur dioxide as calcium monosulphite, and the mixture of monosulphite and carbonate is removed from the liquor either by sedimentation or in a thickener. The ordinary acid towers are packed with inert material instead of limestone, and the weak acid from the first tower is mixed with the monosulphite and carbonate mixture separated from the relief liquor, thereby affording a ready means of controlling the combined sulphur dioxide content of the acid. No. 1,616,703. The primary object of the invention is the efficient and economical cooling of the relief gases from the sulphite digesters; and a secondary object is to utilize the heat content of the relief gas in making available a large volume of highly concentrated sulphur dioxide for the fortification of the raw acid to a high free sulphur dioxide cooking acid. The principle of the process consists in cooling the relief gases by passing them through a tower filled with inert packing material in countercurrent flow to cold water. The water cools the relief gas and condenses out substantially all the steam therein, so that a cool gas with a very high sulphur dioxide content emerges from the top of the tower and a hot effluent containing a comparatively small amount of dissolved sulphur dioxide passes out from the bottom. The effluent from the tower is cooled and then recirculated in the tower, thereby recovering its sulphur dioxide content.—A. P.-C.

Modified Sulphite Pulping Process G. A. Richter, assignor to Brown Co. U. S. pat. 1,610,323, Dec. 14, 1926; Paper Trade J. 85, No. 8, 56 (Aug. 25, 1927). In pulping wood with a sulphurous acid solution containing sodium sulphate, a portion of the sodium constituent can be supplied in the form of niter cake or sodium bisulphate, and can give a high grade pulp essentially equivalent to those produced by sodium base liquors heretofore employed. The pulp produced is of good color and strength and has easy beating properties. The amount of sulphuric acid present in the liquor is not sufficient to injure the fiber, and it is claimed that it promotes the liberation of the fibers at a lower temperature and in a shorter time than ordinarily. This is attributed to the fact that the hydrolytic action exercised by the liquor on the incrustants is favored materially by the high hydrogen ion concentration caused by the sulphuric acid.—A. P.-C.

Automatic Cooking Control for Sulphite Digesters. C. H. Allen, assignor to Great Northern Paper Company. U. S. pats. 1,632,779, 1,633,553 and 1,633,554 (June 21, 1927). No. 1,632,779. The cooking operation is controlled, not by reference to temperature and pressure conditions existing in the digester, but by predetermining the quantity of heat required to cook a given charge, and then delivering heat to the charge at a predetermined rate until the requisite quantity has been delivered. This is obtained by a mechanism which acts on the valve regulating the amount of steam admitted to the digester so that the amount thus introduced automatically follows a predetermined curve. It includes a mechanism which is driven at a constant speed, another mechanism which is automatically responsive to changes in the rate of steam flow, and means for correlating the operations of the two mechanisms to cause them to exert a joint control over the valve-operating mechanism. The relief valve is of such a type that it opens automatically when the pressure rises appreciably above a predetermined value. No. 1,633,553.—The mechanism regulating the action of the steam inlet valve is designed so that the temperature and pressure in the digester will automatically follow predetermined curves. No. 1,633,554.—This is an improvement on No. 1,632,779 with a view to enabling it to handle automatically a wider range of conditions, especially abnormal conditions which may arise. Should the relief valve become partially or completely choked, the mechanism controlling the steam inlet valve would tend to open the latter wider to maintain the predetermined steam-flow curve, which would ultimately raise the pressure in the digester to a dangerous point. Provision is made that when the pressure in the digester reaches a certain value, higher than the normal cooking pressure, the steam valve is automatically shut and remains shut until the conditions which brought the safety mechanism into operation have been corrected, when the valve will automatically open again.—A.P.-C.

Process of Sulphite Cooking. N. K. F. Hanson. U. S. pat. 1,634,143 (June 28, 1927). The gas liberated from the liquor on heating is removed from the upper portion of the digester and again introduced into the digester at the bottom. In this way it is caused to pass through the whole height of wood and liquid in the digester. This has the two-fold advantage of improving the temperature distribution and the liquid circulation in the digester, resulting in more uniform quality of product and reduced cooking time.—A.P.-C.

The Chemistry of Sulphite Cooking. W. H. Birchard. Paper Trade Journal 85, No. 12, 59-61 (Sept. 22, 1927). An account is given of observations made in the course of experimental sulphite cooks in a glass digester of 540-cc. capacity. Convection currents were set up that kept up a considerable circulation, and when gas was relieved from the top of the digester ebullition of the gas caused violent circulation; at no time was there appreciable difference in color of the liquor at the top and bottom of the digester. The progress of penetration of the chips by the acid was about 9 times faster from the ends than from the sides; and as the rate of penetration is the same for all chips, irrespective of size, uniform penetration requires uniform chip size. No evidence was found that lignosulphonic acid polymerizes under the conditions existing in the sulphite process; but if the temperature is raised too rapidly, before the chips have been properly penetrated and both aldehyde groups have been sulfonated, there is danger of the partially sulfonated lignin polymerizing to form insoluble resins; or if the ligno-sulphonic acid is not neutralized by the base as rapidly as formed, it may act on the cellulose in a manner similar to sulphuric acid. It is unadvisable to exceed 145°C. in cooking, as cellulose begins to decompose at about 150°C. On heating sulphite liquor (5.25% total, 3.84% free, 1.31% combined sulphur dioxide) a crystalline precipitate began to form at 128°C. and between 70 and 75 lbs. pressure. If the contents of the digester were allowed to cool, analysis of the precipitate showed it to consist practically entirely of calcium monosulphite; but if the liquor was withdrawn at maximum pressure the precipitate consisted of a mixture of calcium hydroxide and calcium monosulphite. This is attributed to the reaction $Ca(HSO_3)_2 \rightleftarrows Ca(OH)_2 + H_2SO_3$, which proceeds to the left at low and to the right at high temps; but as H_2SO_3 cannot exist above 120°C. (unpublished work by W. B. Campbell), the reaction goes to completion above this temperature. The author concludes that above 120°C. sulphonation of the lignin is accompanied by an alkaline hydrolysis of the beta-cellulose and other carbohydrates by the calcium hydrate, which is the probable explanation of the production of easy-bleaching pure cellulose with sulphite liquors high in base. This is confirmed by the fact that with such a liquor an easy-bleaching pulp was obtained which, after beating for 30 minutes gave a parchment-like sheet which could not be tested with an Ashcroft tester, the stock showing unmistakable signs of hydrolysis and hydration.—A.P.-C.

Sulphite Waste Liquor

Colloid Chemical Investigations of Sulphite Waste Liquor. III. Characterization of the Fractions Obtained by Electrodialysis. M. Samec and I. Ribaric. Kolloidchem. Beihefte 24, 157-80 (1927). Dialysis followed by 2 electrodialyses gives colloidal residue (I), anode colloid (II) and secondary anode dialysate (III). (I) resembles Klason's alpha lignin, (II) his beta lignin and (III) consists of acid and indefinite impurities removed from (II). Fractional precipitation of barium and

naphthylamine salts of (I) prove it to be a very pure and well-defined lignin-sulphonic acid. Analysis and determination of freezing point lowerings and titratable acidity indicate a minimum molecular weight of about 1100, with 2 sulphur, 5 methoxyl and 1 acetyl groups. (I) polymerizes on long standing in water, as shown by the change in equivalent conductivity; the sodium salt of (I) does not change on standing. The conductivity behavior of (I) also indicates that it is very pure. (II) is a sulfolignic acid, containing 3 very strong, 2 very weak acid groups and less methoxyl than (I). Anodic oxidation of (I) appears to give 2 molecules of (II) and also a gas; the methoxyl groups in (I) must have different reactivities.—C.J.W.

Sulphite Cymene as a Thinner for Paints, Varnishers and Lacquers. P. H. Groggins. Chem. Met. Eng. 34, No. 5 (May, 1927); Paper Trade J. 85, No. 9, 51-52 (Sept. 1, 1927). Brief discussion of the possible use of paracymene, obtained as a by-product in sulphite cooking, as a thinner for paints, varnishes and lacquers, with an outline of its recovery, rectification and purification.—A.P.-C.

Sulphite Waste Liquor as an Agricultural Spray. C. S. Fleming and J. H. Reedy. Chem. Met. Eng. 34, 159 (1927). By saturating sulphite waste liquor with hydrogen sulphide an agricultural spray is produced with several times the efficiency of the usual sulphur sprays. Gelatin or corn sugar was added to peptize the sulphur and retard settling.—A.P.-C.

Sulphite Waste Liquor for the Treatments of Roads. P. G. Ekstrom. Eng. pat. 252,378, May 22, 1925; U. S. pat. 1,606,928, Nov. 16, 1926. Sulphite waste liquor is applied to a road with sufficient bases such as white-wash to react with various acid components of the liquor and form salts which are insoluble in water.—A.P.-C.

Alkaline Processes

Heat Economy in the Chemical Plant of the Paper Mill. James Holmes. World's Paper Trade Rev. 87, 1889-1892 (June 17, 1927). A plea for proper utilization and saving of heat in pulp and paper mills. Figures are given displaying the relative merits of different installations in the soda recovery plant, from the point of view of heat per ton of soda ash recovery. They show that the old Porion evaporator installation can practically hold its own with accepted up-to-date installations (triple effect evaporator heated with pass-out steam from turbo-generators, roasters, and waste-heat boiler) and is much more economical than evaporator plants heated with live steam.—A.P.-C.

Practical Recovery of Chemicals from Black Liquor in Sulphate Mills. F. E. Coombs. Chem. Met. Eng. 34, 410-412 (1928). A description of the Wagner furnace designed to take the place of rotaries and smelters, with or without disk evaporators. The concentrated black liquor, at about 35° Baumé, is sprayed into the furnace without addition of auxiliary fuel, and the heat is used for steam raising. The fused ash flows directly into the dissolving tank. The amount of steam generated is almost sufficient for digesting, evaporating, causticizing and bleaching, and by the use of high-pressure turbines power may also be derived, so that the pulp mill can be made almost independent of outside fuel.—A.P.-C.

Treating Residual Pulp Cooking Liquors. L. Bradley and E. P. McKeefe. U. S. pat. 1,637,515, (Aug. 2, 1927). Residual liquors containing essentially sodium monosulphite or sodium monsulphite and caustic alkali are concentrated and sodium monosulphite is crystallized from the concentrated liquor.—A.P.-C.

Treating Black Liquor from the Soda Pulping Process. E. Hägglund. Eng. pat. 258,035, July 4, 1927. Black liquor is heated to about 350°C. under 150 to 200 atmospheres pressure to precipitate most of its organic content as carbonaceous material and to recausticize the alkali present. Before the heat and pressure treatment, wolid caustic acid or a mixture of soda ash and lime (or lime alone) may be added.—A.P.-C.

Black Liquor Recovery Process. W. D. Mount. Eng. pat. 269,256. The black ash is leached and lime is slaked simultaneously in the same liquid, the mixture being thus continuously causticized, and the causticized product is separated into clear liquor and sludge. The black ash, lime and water are introduced into the slaking pot and thence to the causticizer. The latter preferably comprises a vertical casing containing a number of reaction pans each provided with an upwardly extending flue and a mushroom head, an overflow pipe being connected to each of the upper pans. The mixture from the slaking pot is fed into the highest pan and steam or hot air is blown in through a pipe at the bottom. Additional alkali liquid may be added to the causticizer by feeding into an annular trough above the highest pan.—A.P.-C.

Method of Dry Distillation of Alkalized Soda Black Liquor. E. L. Rinman. U. S. pat. 1,638,061 Aug. 9, 1927. Slaked lime is added to the black liquor which is then distilled in presence of steam up to a temperature of about 400°C. The residue is removed from the retort, granulated into pieces about 3 mm. in diameter, and burnt at about 750°C. to consume all organic matter and convert the lime to calcium monoxide.—A.P.-C.

Process of Making Paper Pulp. J. B. Beveridge. U. S. pat 1,631,789, June 7, 1927. Pulp is produced by treating wood or other fibrous substances with the waste liquors obtained from the treatment of wood in aqueous solutions of sodium bisulphate, and thereafter treating with aqueous solutions containing caustic soda and sodium sulphide.—A.P.-C.

Process and Apparatus for Making Paper Pulp. F. K. Fish, Jr. U. S. pats. 1,633,730, to 1,633,738, June 28, 1927. No. 1,633,730.—Air is removed from wood chips or other material treated and the air-free material is charged with liquor such as an alkali solution containing volatile extractives of plant material and is then subjected to a second digestion with a renewed and strengthened liquor containing solvent extractives. No. 1,633,731—specifies treating wood or other plant material with heated liquor initially charged with alkali and volatile and other solvent extractives of plant material to remove from the material solvent extractives and other by-products. No. 1,633,732—specifies making pulp from fibrous material in a digester by cooking with heated liquor under pressure while maintaining a space above the body of the liquor; gases and volatile extractives are withdrawn from this space and liquor is withdrawn from the upper portion of the body of liquor by a steam ejector or the like, and the gases and volatile extractives withdrawn are mixed with the withdrawn liquor and returned to the lower portion of the digester for use in the same cook. No. 1,633,733 specifies an apparatus for grinding wood to make pulp and for treating it with liquor such as a spray of liquor containing wood extractives. No. 1,633,734 specifies treating the fibrous material with cooking liquor in a digester, withdrawing a portion of the liquor from the bottom of the digester, raising the temperature of the withdrawn liquor and returning it to the lower conical part of the digester so as to cause agitation and avoid compacting the charge. No. 1,633,735 specifies mixing and removing gases, volatile solvent extractives and liquid from the upper portion of a digester, mixing the gases and liquor and returning them to the lower portion of the digester for use in the same cook. An apparatus is specified somewhat different from that specified in No. 1,633,732. No. 1,633,736 specifies producing pulp by cooking chips in a digester with a liquor containing solvent extractives of plant materials to which sulphur has been added. No. 1,633,737, specifies preparing a digesting liquor by dissolving sodium carbonate in water charged with volatile and other solvent extractives of wood and passing sulphur dioxide into the solution. No. 1,633,738 specifies white wood fiber, mechanically produced, permeated before grinding with the natural preservatives of the wood treated.—A.P.-C.

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THOS. J. BURKE, C. A., Sec.-Treas.

The Business Outlook and Its Bearing on Sales Estimates and Budgets*

By Dr. E. O. Merchant [1]

I am very much pleased to have the opportunity of meeting with you again. I think I have been meeting with this Cost Association at different times since 1918, and have always enjoyed having the opportunity of getting together with you and seeing what you are thinking about.

I know you must be pretty well surfeited with serious discussions by this time, and I hesitate to impose any further on your patience and good nature by presenting another serious discussion relating to general business conditions.

Your Secretary suggested this title for my talk:—"The Business Outlook and its Bearing on Sales Estimates and Budgets", so that I could talk about almost anything that I chose to, and I presume before I get through you will think I have taken full advantage of the opportunity which he has given me. I will try, however, to be as brief as possible and to this end part of what I have to say I have reduced to writing and to save time will read.

1—Importance of Budgeting

Bradstreet reports that 82 per cent of the failures in 1927 were due to causes which would classify as mismanagement, and the National Industrial Conference Board reports that nearly 40 per cent of all the manufacturing concerns in the country, whose statements are available, have failed to show any net profits during the past five years. What do such statements as these signify? One thing is clearly demonstrated, and that is that haphazard methods of business still prevail in altogether too large a proportion of business concerns. I venture to say that if every manufacturer would install a modern cost system and would budget his operations the story would be altogether different. In this period of surplus capacity, keen competition and narrowing margins of profit, any concern which does not know its costs and does not set up standards of performance, which must be attained if the operations are to show a fair profit, is taking a long chance of landing in the bankruptcy courts.

2—Requisites of Budget Making

Management in making up its budget must have, first of all, complete company or departmental statistics; that is, detailed and accurate information from the accounting department, production department, sales department, purchasing department, financial department, personnel and other departments. The executives or management of a company certainly must be in possession of accurate information regarding all its operations before it can attempt to work up a budget.

Secondly, management ought to have as complete as possible group statistics or industry statistics, association statistics if you want to call them that, such as are collected by trade associations, and to some extent by the Department of Commerce—statistics relating to group plant capacity, group production, group orders, group inventories, etc. And in the third place, in making up a budget, the management ought to have as complete information as possible regarding general business conditions. And under that heading, I think the most important kinds of statistics that should be collected and analyzed and studied to get at the general trend of business are—first, those relating to the money and security markets; second, those relating to the commodity price trend; third, those relating to the inventory situation; fourth, those relating to transportation conditions; fifth, those relating to labor conditions; sixth, those relating to conditions in the major industries, such as iron and steel, automobile, and building; seventh, those relating to agricultural conditions; and eighth, those relating to foreign conditions, especially as they affect imports and exports.

With accurate information regarding those seven or eight classifications, it is possible for management to make a much more intelligent forecast of what is likely to be the trend of business generally than if they simply take the current newspaper statements and trade gossip and rumors.

The sales estimate is naturally the starting point of a budget. Under present conditions, it would be unwise and unsound to set up a budget on the basis of how much tonnage can be produced. The real problem for most paper manufacturers is how much can be sold *at a profit*. At this point I might digress for a moment to say that the tendency in the past has been to lay too much emphasis on production and not enough on profits. Every organization is constantly striving for new production records on the assumption that the more tons produced the more money made. This assumption is by no means sound. It has often been demonstrated that a smaller production results in larger profits. The attempt to market a surplus beyond what the market requires may depress prices on the total output down to the no-profit level. A sound principle for every concern to follow is to make every sale contribute something to profits. I venture to say that more concerns would be successful today if they would make only what they can sell and not try to sell all they can make.

How can an accurate sales forecast be made? The answer, of course, is by the collection and analysis of comprehensive and

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accurate information regarding market conditions. For this purpose, detailed industry statistics such as trade associations collect are invaluable as also are statistics, relating to general business conditions.

3—Industry Statistics

Concerns in the same line of business have the wonderful opportunity presented to them of organizing into trade associations and collecting detailed statistics regarding their operations. In recent years, court decisions have clearly defined what is considered legitimate in the way of trade association activities, and the Department of Commerce has encouraged such activities in every way possible. Some branches of the paper industry have availed themselves of this opportunity and are collecting valuable information for the benefit of their members, while other branches, I am sorry to say, have not shown such good sense and are still groping in the dark as to the real conditions in their field.

It stands to reason that if the management of a concern has in its hands detailed figures showing plant capacity in the industry and the rate of operations during the past few years and can compare its own rate with that of the industry as a whole and know why it has operated above or below the average, it is in a much better position to make an accurate sales forecast for the new year than a concern which does not know these things and has to guess at them.

As a concrete example, supposing a company is a member of a group of fifty companies, and the statistics for the group and for the individual company are as follows:

	Group	Company
Capacity	3,000,000 tons	100,000 tons
Production	2,400,000 "	80,000 "
Orders	2,000,000 "	70,000 "

The individual company with such information can determine immediately that it has operated at the same percentage as the group or 80 per cent. If it happened to have operated at a lower or higher rate, that is an important question for the executives to investigate—to know why; and they must find the answer to that question before they can make a sensible budget. In the same way the individual company can figure out the percentage of orders to capacity which in this particular case for the group is 66.7, and for the individual company is 70 per cent. In respect to the volume of orders taken in therefore, this one company was a little better than the average. This is a simple illustration of how a few facts of this kind gathered by a trade association will give an individual concern valuable information by which to check its own budgeting.

Where the information collected by an industry is fairly complete, it is possible to make an industry forecast that will be of much assistance to the individual concerns in the industry in making up their respective sales forecasts and budgets. For the past several years I have been experimenting with such detailed forecasts for two of the largest branches of the paper industry. While these forecasts have not been 100 per cent correct, they have come near enough to the actual to show the possibilities of such detailed analysis. Industry forecasts must be based on such facts as the known seasonal movements, rate of growth and past performance, as well as on an estimate of future prospects. Where these forecasts have failed it has invariably been due to the lack of essential information.

In making a forecast for the boxboard industry, using that as a concrete example, I took the group statistics back to the beginning of 1920, and by use of statistical methods determined first the trend or annual growth. Next, I determined the seasonal movement in the industry. There is a seasonal peak in March, a low point in the Summer, another seasonal peak in October, and another low point in December. These month to month variations can be worked out mathematically so that you can determine fairly accurately the seasonal movements for any industry.

As an example of a detailed industry forecast, I will present the forecast of boxboard mill operation which I made for the year 1925, since I happen to have this in chart form. It is a little out of date, but will illustrate one method of procedure. The detailed figures are as follows:

Months	Work days *	Seasonal variation	Normal output	Normal capacity	Normal % capacity	Act. % capacity
January	21	93	124,000	132,867	93	103
February	19	92	122,667	120,213	102	103
March	22	106	141,335	139,194	102	90
April	22	101	134,666	139,194	97	..
May	21	105	140,000	132,867	105	..
June	22	101	134,666	139,194	97	..
July	23	95	126,666	145,521	87	..
August	21	110	146,666	132,867	110	..
September	21	111	148,000	132,867	111	..
October	22	110	146,666	139,194	105	..
November	20	91	121,335	126,540	96	..
December	22	85	113,333	139,194	81	..
	256		1,600,000	1,619,712	99	

* On a five day basis.

The total estimate for 1925 of 1,600,000 tons was based on an analysis of all the known factors that we were able to secure. That forecast was then used as a basis for working out the detailed forecasts for each month. The first column shows the number of working days for this group for each month. The second column shows the seasonal factors. The third column shows the normal output per month, which is determined by taking a twelfth of the total estimated production for the year and multiplying it by the seasonal factor for each month. The fourth column shows the total capacity for each month, which is obtained by multiplying the daily rating of the fifty companies by the number of working days in each month. The fifth column, which is obtained by dividing the third column by the fourth, shows the estimated percentage of capacity month by month, that the industry is supposed to run. Then in the last column, is recorded the actual rate of operation for comparison with the estimated.

In January the mills should have run only 93 per cent but they actually ran 103 per cent. In other words, they ran over the estimate. In February they were estimated to run 102 per cent and they actually ran 103 per cent. And in March they were estimated to run 102 per cent and they actually ran only 90 per cent. In other words, in March they lost what they gained in January, and for the first quarter they were just about in line with our forecast. I have forgotten what happened in the following month, but I do recall that at the end of the year we were not far out of the way, although there were considerable variations from month to month, due to various developments that we could not anticipate—such as a slump in the stock market or unseasonable weather conditions.

But to get back to our main subject, if you have complete and accurate industry statistics and can take the time to analyze them and make an industry forecast, I think I do not need to emphasize to you the value of such information to the management in making up an individual budget for the coming year.

4—General Business Statistics

The importance of studying general business conditions in the paper industry, of course, is due to the fact that the paper industry is essentially a cyclical industry. The consumption of paper depends largely upon the conditions of general business. If business is active, more paper is used. If business slackens, less paper is used. And for that reason, it is perhaps more important in this industry than in some others, that an accurate knowledge of general business conditions should be had by the executives if they are going to make accurate sales forecasts, and set up budgets that are satisfactory.

Among those factors that I have referred to above as most important, is the money situation. Some economists say that money is the predominating factor. But whether it is or not, it certainly is one of the most essential factors to be watched. Easy money tends to stimulate activity, while tight money forces liquidation and curtailment.

In 1927, there was a tendency for money rates to rise during the first half year, while in the second half year they went down. That change in trend was due almost entirely to the change of policy of the Federal Reserve Board. In July the Board decided to arbitrarily soften the money market in order to make it easier for European nations to finance their purchase of our agricultural crops. So the Reserve Banks first started buying government securities on a large scale, which is the same thing as pouring money into the money market, and when the bankers' acceptance rates went down far enough to justify a change, they lowered rediscount rates, and that had a depressing effect upon commercial rates and time rates. As a result of this action, we had an easy money market situation during the Fall months, bank credits were inflated and stock prices went up to new high figures.

Since the first of this year, 1928, the Federal Reserve Board has reversed its policy. In January the Reserve Banks started selling Government securities, and in about three weeks they sold $186,000,000 of such securities, taking this amount out of the money market. This tightened money rates, and as soon as bankers' acceptance rates got up to four per cent, the rediscount rates were advanced to four per cent, which had the effect of tightening the commercial rate and time rate for money. For the time being, the Federal Reserve policy is having a moderately restraining influence upon business, but this will only be temporary at most, because we have usually found that a four per cent rate if continued very long would result in an inflow of gold from Europe, and in the meantime the liquidation of stock prices, reducing brokers' loans, will release a large amount of credit. Hence a couple of months of four per cent money will probably be sufficient to bring on a considerable easing in money rates, and when that occurs it will act as a further stimulus to business activity. But between now and the middle of April, commercial borrowing, that is, borrowing for business purposes, normally expands quite a bit, and it will not be until after this borrowing is over, in the middle of April, that money rates will start to ease, and then they will probably ease from the middle of April down through until summer.

Commodity prices constitute another very important factor affecting general business conditions. If commodity prices are going up, business sentiment is always optimistic, buying is active to the point where overbuying usually results after a time, and vice versa, if commodity prices are going down, buying is contracted to the limit and inventories are reduced. So the trend of commodity prices is a very important business factor to be watched. There are a number of good price indexes, such as Bradstreet's, Dun's, Fisher's and the Government or U. S. Bureau of Labor Index. I want to call your attention particularly to the downward movement which all these indexes show, beginning in 1925, and lasting until the Summer of 1927. That downward movement of commodity prices acted as a sort of damper on business. It stimulated hand-to-mouth buying, reduction of inventories, and made business sentiment conservative, competition keen and profit margins narrow. Apparently it was caused largely by readjustments in Europe, as one country after another went back to a gold basis. England went back in the early part of 1925, and the other countries followed. At the present time all of the important countries, with the exception of France, are back on a gold basis, and France can go back on a gold basis whenever she gets ready.

What caused this turn-about in commodity prices last Summer? First of all, it was that change in Federal Reserve policy that I have just referred to. Easy money rates caused gold to flow out from this country to Europe. It eased the European situation, took the pressure off the international commodity markets, and the minute that was done commodity prices began to rise. Since October they have moved more or less sidewise with perhaps a little downward trend. They have shown considerable firmness in spite of the general decline in business that has occurred.

As long as the Federal Reserve Board maintains the four per cent money rate, commodity prices will tend toward weakness. But since the European readjustments, which caused the downward trend of 1925 and 1926, have been pretty well completed, the pressure on the international markets will not again be as great as it was in the past. The point I want to emphasize is, that in the long run commodity prices are likely to be firmer, and show more of a rising tendency from now on than they have in the past. And if they once do get to rising steadily, it will change the whole policy of management as regards not only their sales but purchases and everything else. If executives fail to change their policy in line with the change in commodity prices, they will soon find themselves in hot water. Management must change its policy as fundamental conditions like these change or suffer the consequences. That was the mistake of the Ford Company. They made a tremendous success selling a standardized product at a low price. But in the meantime the public taste for automobiles was changing, and the first thing the Ford executives found, was that they were out on a limb. They didn't change their policy in line with the change in conditions.

Transportation conditions constitute a third important factor, because if you have excellent transportation conditions and orders are being quickly filled, there is not the tendency to over-order and pile up inventories that there is if you have a car shortage and cannot get your orders filled promptly. You over-order because you don't expect to get more than half or three-quarters of your orders filled. So orders pile up and when the car shortage clears up you get an over stocked market and general liquidation ensues. Freight car loadings furnish a very good index of business activity, especially if you will take the actual figures that are published each week and use those as percentages of an average of that week for the past several years, in order to eliminate the seasonal movements, which may be very misleading.

A fourth fundamental factor is the condition of inventories. If stocks on hand are too large, they will cause prices to weaken and production will be curtailed while they are being liquidated to a sound basis. And vice versa, if inventories are below normal and a buying wave starts, they will cause an expansion of orders and of production and a stiffening of prices. Unfortunately, our information regarding inventories is less complete than for any of the other fundamental factors and it is easy to be misled. Such information as we have indicates that at present in most lines of business, inventories are small relative to the rate of consumption. Crude oil and soft coal are notable exceptions and copper would also be an exception, but for the heroic efforts that are being made to keep production down to market requirements.

Conditions in the major industries determine to a large extent the conditions of general business and the rate of activity in the paper industry. When such big industries as iron and steel, automobile and building are active, they induce activity in many varied lines. More men are employed, more wages paid, more raw material used, more freight hauled in and out, etc. The opposite is equally true. A slump in any one or all of these industries has immediate and wide-spread consequences.

At present, the indications in these major industries are quite favorable. Operations in the iron and steel industry have expanded rapidly since December. Steel ingot production in January increased 25 per cent over December. The U. S. Steel Corporation is operating at 90 per cent of capacity as compared with 60 or 65 per cent back in December. The unfilled orders of the U. S. Steel Corporation increased 518,000 tons in December and 303,000 tons in January.

Automobile production is also expanding rapidly. Chevrolet produced 91,600 cars in January and is scheduled to produce 110,000 in February, and 120,000 in March. General Motors retail sales in January were 30 per cent larger than a year ago. Ford now has over 92,000 men at work in his Detroit plants and parts for his new model are being manufactured at a rapid rate. Active assembling has not yet begun, because of some manufacturing difficulties that have been encountered, but it is expected that these will soon be overcome and that by Spring he will be turning out several thousand cars a day. The increased demand for automobiles in 1928 is due to the virtual buyers' strike that existed during the

last half of 1927 when every one decided to wait until Ford brought out his new model before buying a new car.

This morning we had the automobile industry discussed in detail in the Salesmen's Association by the statistician of the National Automobile Chamber of Commerce. It has been my view that in recent years, the automobile industry has not only been a key industry but also a dominating industry upon general business. That has been particularly so, because the building industry and other key industries have been fairly stable during the last few years.

The building industry is almost as important in its bearing upon general business as are the iron and steel and automobile industries, because of the enormous quantity of lumber, steel, brick, cement, and other raw materials used and the large number of men employed. The January figures both for permits and contracts awarded indicate that a very active Spring is in prospect.

Since the Spring of 1923, we have had only relatively short swings of business which bear little semblance to the old type of swing we used to have before the war. In other words, business for five years has been unusually stable, I think probably the most stable that we have ever had in the history of the country, due to a combination of factors which are not necessarily permanent, but which as long as they do remain with us, will tend to keep business fluctuating within fairly narrow limits. We had quite a little slump off in 1924, you remember. There was a rapid pick-up in the Fall of that year however, and business activity continued at a high level in 1925 and 1926. In 1927 business slipped off below the normal line again due, as I think, almost entirely to the automobile situation. There was a real buyers' strike last Fall, not because the buyers didn't have the money for cars, but because they decided to see what Henry Ford was going to bring out before doing anything. And so automobile production slumped off and pulled everything down with it. Other buyers of steel, like the railroads, knowing that the automobile manufacturers were not buying steel, and that steel prices were likely to weaken because of that, kept out of the market until after the middle of December; and then the railroads, which are among the largest buyers of steel, sensing the change that was coming in the automobile industry, rushed into the market and bought more steel in the last two weeks of December than they had bought in months before.

5—Outlook for 1928

Summing up the situation for 1928, in general I think it is going to be quite similar to 1925. That is not very far back for you to remember. There was an upswing early in the year followed by a moderate recession that came after two or three months of fairly good business. In the second half year there was another pronounced upswing. The second half year was considerably better than the first half. We have very much the same picture for 1928. After we get by the Spring expansion, in the automobile, iron and steel, and the building industries, the weakness in the commodity price situation in our domestic markets due to the Federal Reserve policy, and the weakness which may come in the international markets if gold flows back to the United States, will tend to bring on a minor recession for two or three months. The activity of the major industries will slacken and this situation may be intensified somewhat by the approach of the nominating conventions in June. But just as soon as those conventions are out of the way, the prospects are good that we will enter upon a rapid expansion of business activity during the Fall months. And if we have good agricultural crops, of course, that movement will be more pronounced than it will be without such good crops.

6—Outlook for Paper Industry

Taking all the above factors affecting general business into consideration, I do not hesitate to forecast that the consumption of paper of all kinds will show an increase in 1928, of at least five per cent over 1927. Mind you, I say consumption of paper. The production of paper depends not only on consumption, but also on the inventory situation and the balance of exports and imports. The paper board industry, for example, showed an inventory situation which was in such fine shape at the beginning of this year, that I had no hesitation in forecasting for that industry an increase in production of five per cent over 1927. In the news print industry on the other hand, while consumption will increase at least five per cent, the production of United States mills will probably decrease, due to the continuous transfer of business to Canadian mills, which have a lower cost of production.

The consumption of Kraft wrapping paper is likely to increase five per cent over 1927, but production may not show a material increase because of the large inventories which existed at the beginning of this year. I am not so familiar with some of the other grades, but unless you know the inventory situation, and also the relation of imports to exports, you are not sure what production will do even though you may be sure that consumption will show a fair-sized increase.

Rate of Mill Operation

Now when we come to rate of mill operation for 1928, even assuming that production shows an increase of five per cent, it is not probable that the rate of operation will show any increase, as a general rule, because the rapid improvement of equipment, speeding up of machines, and the installation of new machinery, will probably increase the mill capacity at least five per cent in most branches of the industry, and in some cases perhaps more. So that the best we can hope for in respect to the percentage of operation in 1928 is that there will be no material decrease as compared with 1927. And of course, following the general forecast of business for 1928, which we have just made, we may expect that conditions in the paper industry will be much better in the second half of this year than they will be in the first half, not only as regards consumption but also as regards production and the rate of operation.

With that general forecast I will close and leave the subject open for discussion, emphasizing again what I said in the beginning, that there will be just as keen competition throughout most of this year as there has been in the past, conditions will be just as difficult from the selling standpoint, at least until the late Fall, and unless business concerns have their operations budgeted on the basis of what they can sell *at a profit* and not on the basis of what they can produce, they are very likely to get into trouble. Every company should know what its deadline of cost is, and should not allow a pound of paper to be sold out of its mills unless it will contribute something to net profits. I thank you. (Applause.)

Discussion

PRESIDENT KNOTT: Are there any questions you would like to ask Dr. Merchant in regard to his fine talk on the outlook for 1928?

MEMBER: What do you think of debits to bank accounts as a general business index?

DR. MERCHANT: Under ordinary conditions bank debits are a very good index of business. But they have not been a good index under the conditions of the last year or two, because in the second half of 1927, for instance, the volume of business transacted was actually declining, yet financial transactions were increasing as the volume of transactions in the stock market increased. Bank debits include both, and that is why it is a poor index under these conditions. Ordinarily it is a good index.

PRESIDENT KNOTT: Why is it they always claim that the number of blast furnaces in operation is a good index?

DR. MERCHANT: Blast furnace operation is a good business index and a quick one, because a blast furnace operator will not start up his furnace until he is sure that he can keep it running. It costs too much to start up and then have to shut down again. Hence, a blast furnace operator becomes a very excellent forecaster of conditions. He must look ahead and further than that, he must be getting into his hands actual orders for his iron or he won't start up. For that reason the blast furnace index is a very excellent one indeed.

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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Kalamazoo, Mich.—The Kalamazoo Vegetable Parchment Company has asked bids on general contract for its proposed new mill addition and will begin erection at an early date. It will be two and one-half story, steel and concrete, reported to cost close to $1,000,000, with machinery. Billingham & Cobb, Pythian Building, Kalamazoo, are architects.

Appleton, Wis.—The Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., has plans in progress for a new addition to its mill at Appleton, to be 60x180 feet, and 90 feet high, designed as a digester unit, steel and concrete type. It is estimated to cost close to $325,000, with machinery. It is understood that contracts for portion of equipment are now being arranged. Childs & Smith, 720 North Michigan avenue, Chicago, are architects. George W. Mead is president; W. F. Thiele is chief engineer for company, in charge.

Albany, N. Y.—The A. P. W. Paper Company, 1273 Broadway, has awarded a general contract to the H. K. Ferguson Company, Hanna Building, Cleveland, Ohio, for the erection of its proposed new additions, comprising a main structure, 60x300 feet, and smaller unit, 70x80 feet, to cost close to $1,000,000, including machinery. It will be located near the Barge Canal Terminal. The contracting company has also acted as engineer for the work. William A. Wheeler is president.

Hopewell, Va.—The Hummel-Ross Fibre Corporation, Hopewell, has concluded negotiations for the purchase of a tract of about 50 acres of land adjoining its plant, and is reported planning for extensions in present mill, including improvements in existing works.

St. Louis, Mo.—The Waxide Paper Company, 404 Admiral street, Kansas City, Mo., is said to be planning the early erection of a new branch plant at St. Louis, for the manufacture of waxed and processed papers. Property has been selected at Newstead street and Racecourse avenue; initial plant unit will be one-story, reinforced-concrete, 150x275 feet, to be equipped for a capacity of about 200 tons per month. It is estimated to cost approximately $200,000, including machinery.

Marine City, Mich.—A paper manufacturing company at Kalamazoo, Mich., name temporarily withheld, is said to be in negotiation with Andrew Freiderichs, mayor, Marine City, relative to purchase of former local plant of the Independent Sugar Company, with adjoining property, and proposes to remodel the property for a new paper mill. It will also arrange for construction of new buildings, to develop a complete paper-making unit. Mayor Freiderichs has information regarding the project.

Primos, Pa.—John A. Bradley, Inc., Philadelphia, Pa., has been organized by John V. McDonald, 1813 East Ontario street, Philadelphia, and associates to establish and operate a plant at Primos, for the manufacture of paper goods of various kinds, including envelopes, wrapping papers, etc. The new company is capitalized at $20,000, and will also conduct a general distributing business in this line.

Bellingham, Wash.—The San Juan Pulp Manufacturing Company, Laurel and Cornwall avenues, has awarded a general building contract to C. J. Knutsen, 1004 Key street, for a new one-story addition to its place, to be located at Maple and Cornwall streets, comprising the first of new buildings for an expansion program recently approved. It is estimated to cost about $35,000, with equipment.

Erie, Pa.—The H. F. Watson Paper Company, Erie, manufacturer of roofing papers and kindred products, has arranged for a merger with the Ruberoid Company, 95 Madison avenue, New York, with plants at Bound Brook, N. J., and Joliet, Ill., and the Continental Roofing & Manufacturing Company, 1,200 South Sixteenth street, Baltimore, Md., both specializing in similar production. The new consolidated organization proposes to keep all present plants in service and contemplates an expansion program for increased output.

Kansas City, Mo.—The Kansas City Fibre Box Company, Adams and Wyoming streets, operated by the Hinde & Dauch Paper Company, Sandusky, Ohio, is reported to have preliminary plans under way for the construction of a new local fiberboard mill, comprising one-story unit, to cost more than $800,000, with machinery. It is understood that work is scheduled to begin early in the fall. J. F. Cleary is president of the local company.

Ashland, Wis.—The Lake Superior Paper Company, affiliated with the Menasha Printing and Carton Company, Menasha, Wis., has arranged an appropriation of close to $50,000, for improvements in its mill, during 1928, including the beautifying of grounds. It is understood that work will mature at an early date. Rudolph Meyers is local manager.

Tenmile, Miss.—R. L. Grissom, manager of Central Power and Light Company, Natchez, Miss., is reported at the head of a project to construct and operate a paper mill in the vicinity of Tenmile, before the close of present year. It is understood that company will be organized and financing arranged to an amount of more than $2,000,000, for the initial project. A number of men at Natchez, it is said, will become identified with the enterprise. A tract of land has been selected.

Rumford, Me.—The Oxford Paper Company, 200 Fifth avenue, New York, is said to have plans nearing completion for the construction of a new addition to its mill at Rumford, Me., to be used largely for pulp division. It is estimated to cost more than $100,000, including grinding and other machinery. Percy Searle, Rumford, is company engineer, in charge.

Philadelphia, Pa.—The General Paper Box Company, recently organized by Oscar D. Mann, 2201 North 53rd street, Philadelphia, and associates, is said to be planning the early operation of a local plant for the manufacture of fiber and paperboard boxes, and containers. The company is capitalized at $25,000. Richard K. Stevens and Max J. Sacks, 1641 North Marshall street, are also interested in the organization.

Chicago, Ill.—The Federal Folding Box Company, 1024 West Van Buren street, has leased space in the building at 1214-8 North Wells street, held by the Illinois Show Case Works, and will occupy for expansion.

St. Louis, Mo.—Fire, March 24, slightly damaged the plant of the Western Paper Stock Company, 1514 O'Fallon street. An official estimate of loss has not been announced. The damage will be replaced.

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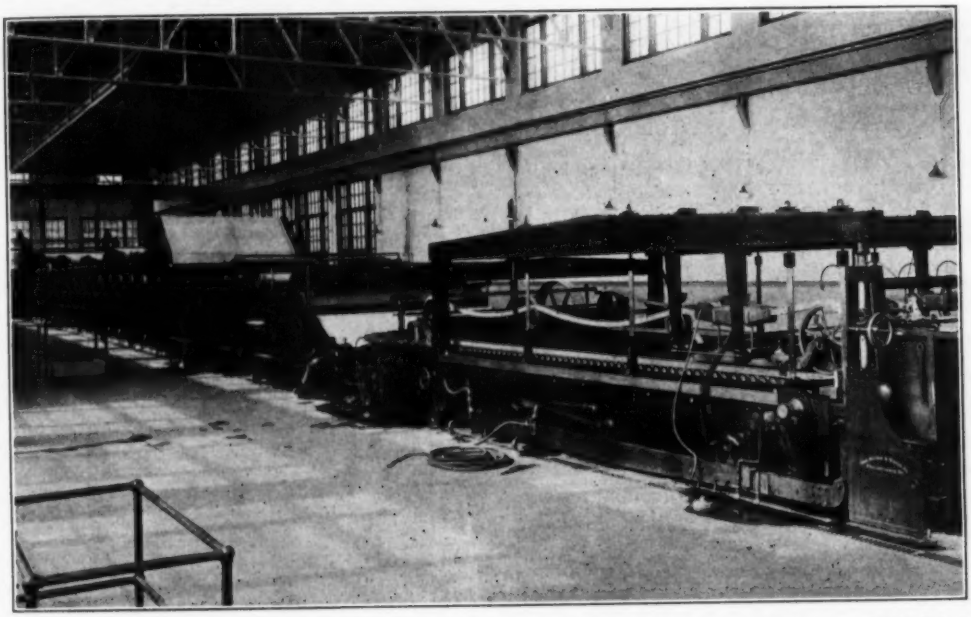

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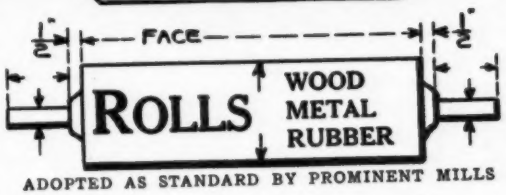

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Paper hangings	45 bls., 10 cs.
News print	1,709 rolls, 187 bls.
Printing paper	214 rolls, 181 cs.
Pergamyn paper	39 cs.
Stencil paper	73 cs.
Wrapping paper	30 cs.
Tissue paper	5 cs.
Surface coated paper	197 cs.
Baryta coated paper	207 cs.
Litho paper	20 cs.
Basic paper	26 cs.
Decalcomania paper	39 cs.
Parchment paper	13 bls.
Silk paper	5 cs.
Colored paper	24 cs.
Filter paper	10 cs.
Drawing paper	3 cs.
Corn husk paper	12 cs.
Design paper	1 cs.
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Straw pulp board	160 rolls
Miscellaneous paper	390 rolls, 21 bls., 36 cs.

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FILTER PAPER

H. Reeve Angel & Co., Inc., American Merchant, London, 10 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., American Merchant, London, 3 cs.

CORN HUSK PAPER

Cork Import Corp., Minnesota, London, 12 cs.

DESIGN PAPER

Patchogue Plymouth Mills, Inc., Carmania, Liverpool, 1 cs.

STRAW BOARD

Perkins, Goodwin & Co., Volendam, Rotterdam, 311 rolls.

A. Vuyk, Volendam, Rotterdam, 699 rolls.

STRAW PULP BOARD

J. P. Heffernan Paper Co., Volendam, Rotterdam, 160 rolls.

MISCELLANEOUS PAPER

International Forwarding Co., Volendam, Rotterdam, 4 cs.

P. H. Petry & Co., Volendam, Rotterdam, 8 cs.

J. Beckmann, Volendam, Rotterdam, 3 cs.

S. Gilbert, Volendam, Rotterdam, 13 cs.

American Exchange Irving Trust Co., Stockholm, Gothenburg, 312 rolls, 21 bls.

C. K. MacAlpine & Co., Stockholm, Gothenburg, 78 rolls.

E. H. Sergeant & Co., Stockholm, Gothenburg, 5 cs.

Whitfield Paper Works, Bengal Maru, Kobe, 3 cs.

RAGS, BAGGINGS, ETC.

A. W. Fenton, Inc., Berlin, Bremen, 24 bls. rags.

Goldman, Sachs & Co., Berlin, Bremen, 209 bls. rags.

Darmstadt, Scott & Courtney, Vincent, Dunkirk, 49 bls. rags.

E. J. Keller Co., Inc., Vincent, Dunkirk, 139 bls. rags.

E. J. Keller Co., Inc., Vincent, Havre, 35 bls. bagging.

Downing & Co., Vincent, Havre, 4 bls. rags.

Castle & Overton, Inc., Vincent, Havre, 115 bls. rags.

Castle & Overton, Inc., Vincent, Havre, 110 bls. bagging.

W. H. Quick, Jr., Vincent, Havre, 207 bls. jute waste.

Salomon Bros. & Co., Eastern Dawn, Antwerp, 122 bls. threads.

A. W. Fenton, Inc., Waukegan, Dunkirk, 36 bls. rags.

Spaulding Fibre Co., Waukegan, Dunkirk, 98 bls. rags.

V. Galaup, Waukegan, Havre, 35 bls. rags.

Lavin & Rosenberg, Waukegan, Havre, 4 bls. rags.

E. J. Keller Co., Inc., Cleveland, Hamburg, 15 bls. rags.

Corn Exchange Bank, Cleveland, Hamburg, 4 bls. rags.

B. D. Kaplan, Cleveland, Hamburg, 51 bls. rags.

General Fiber Co., G. Washington, Bremen, 9 bls. rags.

Overton & Co., G. Washington, Bremen, 64 bls. bagging.

American Exchange Irving Trust Co., Volendam, Rotterdam, 163 bls. rags.

Atlantic National Bank, Volendam, Rotterdam, 81 bls. cotton waste.

E. J. Keller Co., Inc., Volendam, Rotterdam, 57 bls. rags.

Darmstadt, Scott & Courtney, Volendam, Rotterdam, 64 bls. bagging.

N. Y. Trust Co., Kepwick Hall, Barcelona, 169 bls. rags.

E. J. Keller Co., Inc., Kepwick Hall, Barcelona, 69 bls. rags.

N. Y. Trust Co., Kepwick Hall, Barcelona, 133 bls. jute bagging.

National Park Bank, Kepwick Hall, Barcelona, 35 bls. rags.

W. Schall & Co., Kepwick Hall, Barcelona, 154 bls. rags.

Jaffe Products Co., Primero, Havana, 24 bls. rags.

B. D. Kaplan, Bolivier, Antwerp, 2 bls. rags.

D. M. Hicks, Inc., Saco, Antwerp, 186 bls. flax pulp.

Whaling Waste Products Co., Saco, Antwerp, 69 bls. jute waste.

Castle & Overton, Inc., Saco, Antwerp, 90 bls. rags.

E. J. Keller Co., Inc., Saco, Antwerp, 160 bls. flax waste.

Green, Hamilton & Co., West Arrow, Rotterdam, 164 bls. cotton waste.

French American Banking Corp., Cherca, Genoa, 19 bls. rags.

Banco Com'l Trust Co., Cherca, Leghorn, 203 bls. rags.

C. B. Richard & Co., Cherca, Naples, 42 bls. rags.

V. Galaup, Cherca, Naples, 36 bls. rags.

A. H. Searle, Inc., N. Y. City, Bristol, 125 bls. rags.

Mutnick Bros., Inc., Carmania, Liverpool, 67 bls. rags.

Overton & Co., Derrflinger, Bremen, 43 bls. bagging.

Garfield National Bank, Derrflinger, ——, 68 bls. rags.

B. D. Kaplan, Derrflinger, Bremen, 7 bls. rags.

Banco Com'l Trust Co., Liberty Land, Leghorn, 36 bls. rags.

Darmstadt, Scott & Courtney, Liberty Land, Leghorn, 100 bls. bagging.

Phila. Girard National Bank, Liberty Land, Leghorn, 88 bls. rags.

Salomon Bros. & Co., River Delaware, Alexandria, 104 bls. rags.

Salomon Bros. & Co., Maryland, Havre, 57 bls. rags.

Castle & Overton, Inc., C. of Shanghai, India, 312 bls. bagging.

Castle & Overton, Inc., Indep. Hall, Dunkirk, 138 bls. rags.

OLD ROPE

N. E. Berzen, Cabo Villano, Vigo, 131 coils.

Brown Bros. & Co., Volendam, Rotterdam, 57 bls.

Brown Bros. & Co., N. Y. City Bristol, 138 coils.

CASEIN

T. M. Duche & Son, Sardinian Prince, Buenos Aires, 417 bags, 25,020 ks.

Champion Coated Paper Co., Raeburn, Rosario, 1,197 bags.

Tradesman's National Bank, Primero, Buenos Aires, 334 bags, 20,040 ks.

West Virginia Pulp & Paper Co., Primero, Buenos Aires, 417 bags, 25,020 ks.

Kalbfleisch Corp., So. Cross, Buenos Aires, 2,300 bags.

1st National Bank of Boston, So. Cross, Buenos Aires, 751 bags.

Champion Coated Paper Co., So. Cross, Buenos Aires, 417 bags.

American Exchange Irving Trust Co., So. Cross, Buenos Aires, 417 bags.

WOOD PULP

Castle & Overton, Inc., Cleveland, Hamburg, 2,337 bls. wood pulp, 350 tons.

Parsons & Whittemore, Inc., Stockholm, Gothenburg, 600 bls. wood pulp.

E. M. Sergeant & Co., Stockholm, Gothenburg, 170 bls. sulphite.

Price & Pierce, Ltd., Stockholm, Gothenburg, 318 bls. wood pulp.

Bulkley, Dunton & Co., Stockholm, ——, 250 bls. sulphite.

A. P. W. Paper Co. (Albany), Laila, Sheet Harbor, 2,767 tons wood pulp.

(Continued on page 74)

ALPHA FIBRE

Uniform Quality

Alpha takes the place of most grades of rags in the making of fine papers. Its absolute regularity and greater purity maintain your high standards.

Brown Company
PORTLAND, MAINE.

ENGINEERS

Power plants—additions—complete paper mill projects

ONE great organization—a specialist in paper mill engineering and construction—designs, builds, rebuilds, reports, appraises, for many of the most important concerns in the paper industry. Plans, price, construction work, delivery date, owner's satisfaction, all guaranteed.

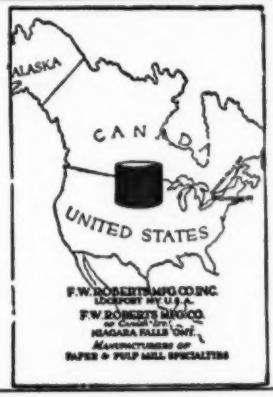
Ferguson customers include:

Hinde & Dauch Co.
A. P. W. Paper Co.
Mead Pulp and Paper Co.
Chillicothe Paper Co.
Warren Mfg. Co.
Spencer-Wynne Paper Products Company
Bennington Wax Paper Company
Oswego Falls Corp.
Fairfield Paper Co.

THE H. K. FERGUSON COMPANY
Hanna Bldg. • Cleveland, Ohio • Phone: SUp. 3620
New York • Detroit • Birmingham • Tokio, Japan

Ferguson
ENGINEERS

BURRS



BURRS

C. K. WILLIAMS & CO.
ANCHOR BRAND
DRY COLORS AND FILLERS
EASTON, PA. U.S.A.

Red
Brown
Yellow
} Oxides

Talc
Yellow Ochres,
Umbers, Agalite

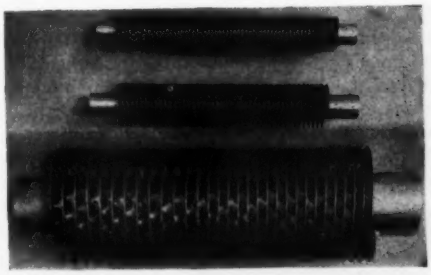
C. K. Williams & Company
EASTON, PA.

Specify

RADIAFIN TUBES

for air-heating and air-cooling units

They have 6 to 10 times as much surface as plain tubes of same size and their use insures greater capacities with fewer tubes.
½" to 6"—High or low pressure—Lengths up to 15 feet
Plain or flanged ends—With or without headers
Quantity Production



SCHUTTE & KOERTING Co. 1255 N. 12th Street PHILADELPHIA, PA.

Imports of Paper and Paper Stock

(*Continued from page 72*)

WOOD FLOUR

State Chemical Co., Volendam, Rotterdam, 420 bags.

State Chemical Co., West Arrow, Rotterdam, 595 bags, 31,480 lbs.

WOOD PULP BOARDS

C. K. MacAlpine & Co., Stockholm, Gothenburg, 37 bls.

Wilkinson Bros., Inc., Stockholm, Gothenburg, 30 rolls.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 31, 1928

E. Butterworth & Co., Inc., Eastern Dawn, Antwerp, 54 bls. rags.

Tradesman's National Bank, Eastern Dawn, Antwerp, 193 bls. rags.

W. L. Loeser & Co., Eastern Dawn, Antwerp, 241 bls. rags.

Castle & Overton, Inc., Eastern Dawn, Antwerp, 646 bls. rags.

P. O'Neill & Co., Eastern Dawn, Antwerp, 35 bls. rags.

L. H. Abenheimer, Eastern Dawn, Antwerp, 6 bls. rags.

MacBlaine & Co., Eastern Dawn, Antwerp, 33 bls. rags.

E. A. Stone & Co., Waukegan, Dunkirk, 85 bls. rags.

Castle & Overton, Inc., Waukegan, Dunkirk, 349 bls. rags.

Katzenstein & Keene, Inc., Waukegan, Dunkirk, 233 bls. rags.

A. Hurst & Co., Waukegan, Havre, 54 bls. rags.

J. M. Hagy Waste Works, Waukegan, Havre, 63 bls. rags.

V. Galaup, Waukegan, Havre, 75 bls. rags.

E. J. Keller Co., Inc., Waukegan, Havre, 100 bls. rags.

Castle & Overton, Inc., Waukegan, Havre, 579 bls. rags.

Salomon Bros. & Co., Waukegan, Havre, 204 bls. rags.

American Rag Trading Co., Cabo Villano, Bilbao, 83 bls. rags.

Perkins, Goodwin & Co., Maine, Oslo, 570 bls. wood pulp.

D. I. Murphy, Kepwick Hall, Barcelona, 83 bls. rags.

N. Y. Trust Co., Kepwick Hall, Barcelona, 59 bls. rags.

Chase National Bank, Kepwick Hall, Barcelona, 271 bls. rags.

Grace National Bank, Cherca, Naples, 138 bls. rags.

Phila. Girard National Bank, Cherca, Naples, 45 bls. rags.

V. Galaup, Cherca, Naples, 144 bls. rags.

Equitable Trust Co., Cherca, Naples, 110 bls. rags.

Salomon Bros. & Co., Devonian, Antwerp, 388 bls. rags.

Salomon Bros. & Co., McKeesport, Havre, 609 bls. rags.

Salomon Bros. & Co., Maryland, Havre, 297 bls. rags.

E. J. Keller Co., Cabo Mayor, Barcelona, 140 bls. rags.

Castle & Overton, Inc., Indep. Hall, France, 78 bls. rags.

Castle & Overton, Inc., Quaker City, England, 381 bls. rags.

Castle & Overton, Inc., London Corp., England, 54 bls. old rope.

Castle & Overton, Inc., London Corp., England, 57 bls. rags.

Castle & Overton, Inc., Ambridge, Holland, 232 bls. rags.

Castle & Overton, Inc., West Eldara, Belgium, 740 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING MARCH 31, 1928

Congoleum Nairn Co., Saco, Antwerp, 1,038 bls. rags.

E. J. Keller Co., Inc., Blydendyk, Karlsruhe, 600 bls. wood pulp.

Bulkley, Dunton & Co., Lygneren, ——, 2,750 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING MARCH 31, 1928

E. Butterworth & Co., Inc., Saco, Antwerp, 225 bls. bagging.

N. Y. Trust Co., Saco, Antwerp, 209 bls. bagging.

E. J. Keller Co., Inc., Gerwin, Bremen, 350 bls. wood pulp.

CHARLESTON IMPORTS

WEEK ENDING MARCH 31, 1928

Castle & Overton, Inc., Coldwater, Belgium, 301 bls. bagging.

NEW ORLEANS IMPORTS

WEEK ENDING MARCH 31, 1928

Castle & Overton, Inc., Syros, France, 96 bls. rags.

PORTLAND IMPORTS

WEEK ENDING MARCH 31, 1928

Bulkley, Dunton & Co., Argosy, ——, 5,200 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING MARCH 31, 1928

White Wycoff Manfg. Co., Maine, Oslo, 99 rolls news print.

Chemical National Bank, Maine, Oslo, 125 bls. sulphite.

1st National Bank of Boston, Sardinian Prince, Buenos Aires, 1,668 bags casein, 100,080 lbs.

E. J. Keller Co., Inc., Navadan, ——, 400 bbls. rags.

Brotherhood Head Returns From Speaking Tour

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., April 2, 1928.—William R. Smith, president of the International Brotherhood of Papermakers, is back at local headquarters after a trip through Northern New York during which he delivered several addresses at meetings of local unions including a large gathering at Felts Mills.

Preparations are being made for the conference to be held here Thursday by heads of international labor organizations connected with the papermaking industry. This coming conference will decide the spring program as it relates to the signing of new wage and working agreements with the manufacturers. The meeting is regarded in papermaking circles as of considerable importance.

The same parties met several weeks ago in this city and after a full discussion of wages and working conditions decided to postpone definite action on new agreements until April 5 to allow local unions an opportunity to express their views. Since then many of the local unions have written headquarters suggesting changes in the agreements and these communications will have a bearing on the decision of the coming conference.

An increase in the production of union watermarked paper to 300 tons monthly will result from recent activities of Matthew J. Burns, former International secretary of the Brotherhood and unsuccessful candidate for president at the election last fall. Mr. Burns has been making an extensive tour of the principal cities of the country and as a result many union organizations planning publicity work have agreed to use the union watermarked paper. A large percentage of the union watermarked paper is produced at the plant of the Unity Paper Company in Potsdam.

Andrew Jackson Appointed Chief Engineer

HOLYOKE, Mass., April 2, 1928.—Andrew Jackson, who has been acting chief engineer for the past year, since the resignation of Mr. Harrigan, has been appointed chief engineer of the American Writing Paper Company, Inc. Mr. Jackson has been with the company for the past eleven years as assistant chief engineer and previously was with Pusey & Jones, designing paper mill machinery.

The Engineering Division of the American Writing Paper Company, Inc., has been divided into three departments as follows: William G. Russell has been appointed maintenance superintendent in charge of all maintenance matters and the central repair shop. He has been with the company for elevent years, first as chief draftsman and later as assistant chief engineer.

Raymond I. Chapin has been appointed superintendent of power, in charge of all power plants and uses of power. Mr. Chapin is a recent addition to the company's engineering forces. He has had sixteen years experience as electrical and power engineer since his graduation from the Worcester Polytechnic Institute.

Fernand H. Willemain has been appointed assistant engineer in charge of new work or changes. He has been with the company eight years and is a graduate of the Mississippi A. & M. College.

New Schutte & Koerting Jet Catalog

The Schutte & Koerting Company, of Philadelphia, Pa., has just published a new and completely revised bulletin covering Water Jet Exhausters and Compressors. The new edition is profusely illustrated and contains a great deal of information on capacities, applications, prices, weights, etc., not given in the previous sections.

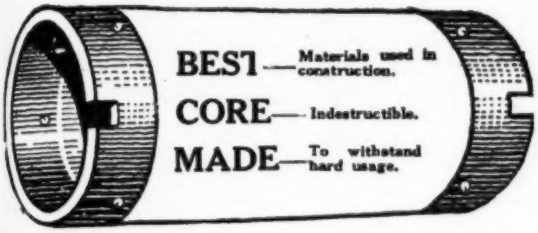
SHIPPING INSURANCE

The Use of

ELIXMAN CORES

protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

SHIPPING INSURANCE



Your two sources of supply are

Canadian Elixman Company
HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.

INTERNATIONAL ACCEPTANCE BANK
INCORPORATED

International Banking Transactions

Commercial Letters of Credit
Collections Foreign Exchange
Investment Securities
Bullion and Currency

PAUL M. WARBURG, *Chairman*
F. ABBOT GOODHUE, *President*

52 Cedar Street, New York

Who Wants to Start in the Bag Business in New York City?

To get on to mass production we have decided to move our entire stock of Bag Machines. Every one of them new Machines. The Lockport machines will outlast and outperform any other make of Bag Machine that stands on four legs. They are as follows:

Flat and Square— Self-Openers — Notion and Glassine — Confectionery

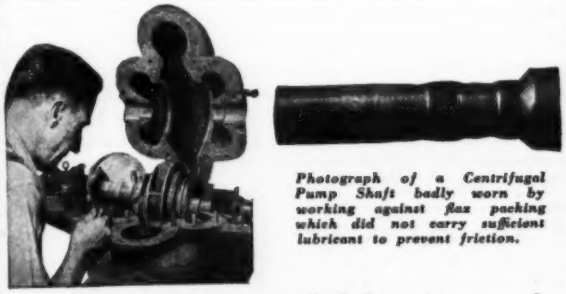
The entire lot is to be let out on three years' time, with no cash payment down, no mortgage or conditional bill of sale.

Why chase Rainbows all your lives? The boss gets all the profits—you get nothing. Get into business for yourself and get somewhere. You can start in a cellar, loft, garage or the corner of a warehouse. You will have little or no overhead, and have more than a fighting chance against manufacturers, who are now paying a rental of sixty-five cents per square foot per month.

A bag machine adjuster who understands his business, and a salesman who has been calling on the trade, who have "guts," and are willing to work, can have a business of their own.

All that is required is one or more of them who is game, to have a rating in Dun's to cover the price of the purchase, to have first or second line credit—there is no fake or catch to this offer.

LOCKPORT MACHINE CO.
LOCKPORT, N. Y.



Photograph of a Centrifugal Pump Shaft badly worn by working against flax packing which did not carry sufficient lubricant to prevent friction.

Avoid scoring the pump shaft by using a packing that has sufficient lubricant to prevent friction.

STYLE C PACKING

For pumps handling caustic soda and similar chemicals.

Its lubricant can be relied upon to resist the cutting action of these chemicals, and to keep the pump shaft so perfectly lubricated as to avoid friction.

To prove our claims let us send you a free working sample to test under your own conditions.

Specify Style C and state size desired.

GREENE, TWEED & CO.
Sole Manufacturers
109 Duane St., New York

New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, April 4, 1928.

Trading in the local paper market was fairly active during the past week. Demand for the various grades was persistent and supplies continue to move into consumption in satisfactory volume. Sales organizations of the leading paper houses are receiving numerous good orders and conditions compare favorably with the corresponding period of last year.

News print paper continues in excellent request and the local market is in a sound position. Contract withdrawals are proceeding at a normal rate and the spot demand is well up to the average for this time of the year. Prices are generally holding up to schedule and there is little talk of concessions around.

Production of the various grades of paper board is being maintained in sufficient volume to take care of the prevailing demand. Quotations remain steady and unchanged. Orders for book paper are quite numerous, especially the coated grades. The fine paper market continues to improve and light weight papers are also in excellent request. Sales of coarse paper are holding up well and wrapping paper is still moving in a regular manner.

Mechanical Pulp

The ground wood market is practically unchanged. Offerings are apparently sufficient for the current needs. Shipments against contract are going forward in moderate volume. Quotations on both domestic and imported mechanical pulp are holding up to previously reported levels without difficulty and shading is infrequent.

Chemical Pulp

Negotiations between the owners of the pulp and paper mills in Sweden, and the workers, are proceeding. Representatives of the employers and the trade unions are to meet on April 7 to endeavor to reach a satisfactory agreement whereby the lockout now in force may be terminated. The local chemical pulp market remains very firm. Both imported and domestic bleached sulphite, in particular, are exhibiting a strong tone. The imported product is selling for from $3.55 to $4.25 and the domestic is offered at from $3.40 to $4.75.

Old Rope and Bagging

Demand for old rope and bagging was rather quiet during the past week. Prices were inclined to fluctuate slightly, although in most instances the recently quoted levels were maintained. Imported manila rope remained practically unchanged at from $3 to $3.10. The domestic product was offered at from $3.25 to $4.00.

Rags

No radical changes were recorded in the local rag market although the paper mills are apparently beginning to take a little more interest in both domestic and imported grades. New domestic rags continue to move into consumption steadily. Prices of most of the grades are unaltered, with the exception of imported dark cottons and shoppery, which are slightly easier.

Waste Paper

The paper stock market continues to exhibit a strong undertone. Book and ledger stock are still in excellent request, and with offerings decidedly limited, quotations remain firm. Both the higher and the lower grades of waste paper are in slightly better demand from the mills and the outlook for the immediate future is considered very encouraging in most quarters.

Twine

Steadiness continues to prevail in the local twine market. This product is in excellent request, due to the unusually heavy consumption of wrapping paper on account of Easter and Springtime requirements. Prices are generally holding up to the schedule which has been maintained for some considerable time and the immediate outlook for the industry is bright.

Resigns From Orono Paper Co.

ORONO, Me., April 2, 1928.—Perley B. Palmer, who for the past 22 years has been connected with the Orono Pulp and Paper Company, the first three years of that time as construction engineer, and latterly as general superintendent, has resigned.

Mr. Palmer graduated from Maine State College, now the University of Maine, in 1898, and for ten years after graduation was connected with the International Paper Company, as construction engineer, coming to the Orono company in 1906, from construction work at Berlin, N. H.

Mr. Palmer stated that he had no definite plans for the future except that he intended to take a rest. Last fall he underwent a serious operation in Boston and was able to resume his position at the mill but feels that he should rest for a period before again taking up active work.

Shipping Room Practice Up-To-Date

Dedicated to Thomas A. Edison, who invented gummed package sealing tape in 1879, the National Association of Gummed Tape Manufacturers recently published an attractive and instructive booklet entitled "Shipping Room Practice Up-To-Date."

The booklet, which is profusely illustrated, describes fully the functions of a good container, the advantages of gummed tape, Government experiments with package efficiency, the proper method of taping a container, various types of tape moisteners, and also instructs the reader how to become an expert sealer.

Engineering Information on Tentacular Transmission

Alexander Brothers, Inc., of 14 South street, Philadelphia, have just issued a new Tentacular booklet. This interesting booklet is profusely illustrated and has been designed to acquaint transmission, heating and ventilating and other engineers with the various merits of Alexander Brothers Tentacular Transmission Belting and should prove of great interest to everyone interested in the subject of power transmission.

Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 3, 1928.—The R. P. Andrews Paper Company has been awarded the contract for furnishing the Government Printing Office with 1,000 sheets of 26 x 43 sensitized paper at $31.90 per ream. The same firm will also furnish 4050 pieces of 9 x 14 blue cloth lined paper at $82.00. Bids for these items were received on March 14.

The

ST. REGIS PAPER COMPANY

Daily Capacity 525 TONS

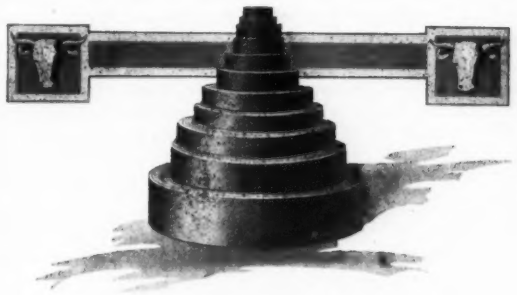
Newsprint
Catalog and Directory Papers
Fibre Wrapping Papers
Packers Oiled Manila
Specialties

General Sales Office

49 Wall St., New York

Farmers' Bank Bldg.
Pittsburgh, Pa.

RHOADS LEATHER BELTING



In Service 44 Years

A REPORT reaches us of a West Virginia mill supply company that recently replaced, for one of its customers, a 2½-inch Rhoads Leather Belt that had been in constant use since 1884; and also referred to a 6-inch Rhoads Belt put on at the same time as the 2½-inch, that is still in use.

Such long service, we know, is unusual; and no one expects all belts, under present day high production methods, to last forty-four years.

But you do have a right to expect Rhoads Tannate Watershed Belting to last longer on a given drive, wet or dry, than best oak, rubber or fiber belting, and that it will slip less and hence give greater output or more even quality of production.

The Rhoads Service Guarantee assures you economical belt service when you buy Rhoads Tannate Watershed Leather Belting.

J. E. RHOADS & SONS

PHILADELPHIA .....37 North Sixth Street
NEW YORK .....104 Beekman Street
CHICAGO .....324 West Randolph Street
ATLANTA .....70 Forsyth Street, S. W.
CLEVELAND .....1224 W. Ninth Street
Factory and Tannery: Wilmington, Del.

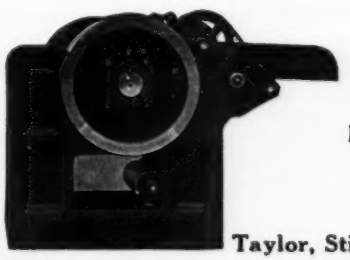
STANDARD SELF-ALIGNING

3 Important Features
Rustproof Plates
Self Aligned Plates
Self Aligned Rivets

Write for Samples

The BOURNE-FULLER CO.
UPSON WORKS
UNIONVILLE, CONN.

BELT FASTENERS



TAYLOR, STILES & COMPANY TRADE MARK GIANT REGISTERED RIEGELSVILLE, N.J.U.S.A.

RAG CUTTERS

Taylor, Stiles & Company
Riegelsville, N. J.

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, April 4, 1928.

While most of the business transacted in the local chemical market during the past week was along routine lines, inquiries for future business were numerous, and the outlook for the immediate future is promising. Shipments against contract continue to go forward in a satisfactory manner, and the movement into consumption shows no signs of slackening. Prices remain fairly steady and there is not much talk of concessions around.

BLANC FIXE.—During the past week, demand for blanc fixe was normal for the time of the year, and the market remains quotably unchanged. Contract withdrawals are moving at a steady pace. The pulp is still offered at $60 per ton, in bulk, while the powder is selling at from 4 cents to 4½ cents a pound, in barrels, at works.

BLEACHING POWDER.—Conditions in the bleaching powder market are practically unchanged. Demand is holding up very well and stocks are not in excess of requirements. Prices remain unaltered. Bleaching powder is quoted at from $2 to $2.35 per 100 pounds, in large drums, at works, according to quantity and grade.

CASEIN.—Some improvement was noticed in the casein market. Demand for this product is insistent. Supplies are moving into consumption in a satisfactory manner. Prices are somewhat firmer. Domestic casein is selling at from 16 cents to 17 cents a pound and imported casein is quoted at from 16½ cents to 16¾ cents a pound, all in bags, car lot quantities.

CAUSTIC SODA.—Supplies of caustic soda are moving into consumption in heavy volume. Production is being maintained in sufficient capacity to take care of current requirements. Prices remain steady and unchanged. Caustic soda is quoted at from $2.90 to $2.95 per 100 pounds, in large drums, at works. The flake and the ground are offered at from $3.30 to $3.35 per 100 pounds.

CHINA CLAY.—The china clay market was moderately active during the past week. Contract withdrawals continue to move in a regular manner. Prices remain unaltered. Imported china clay is selling at from $15 to $25 a ton, in bulk, ship side. Domestic paper makers' clay is quoted at from $8 to $9 a ton, at mine, and pulverized at from $10 to $12 a ton.

CHLORINE.—Contract withdrawals of chlorine are proceeding at a normal rate. Supplies are sufficient to take care of the current consumption. Prices are steady and unchanged. Chlorine is still quoted at 3½ cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 3¾ cents to 4 cents a pound.

ROSIN.—The rosin market continues to fluctuate. Demand for this product is moderately active and shipments against contract are moving in a normal manner. At the naval stores, the grades of rosin used in the paper mills are now quoted at from $9.50 to $9.90 per 280 pounds, ex dock, in barrels. Wood rosin is offered at from $7.50 to $8.30 per 280 pounds, ex southern shipping points.

SALT CAKE.—Manufacturers of salt cake are reported to be well sold ahead, and the market continues in a sound position. The scheduled prices are being maintained, in most instances, without difficulty. Salt cake is selling at from $18 to $19 a ton, in bulk, at works. Chrome salt cake is still offered at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—Demand for soda ash is about normal for the time of the year. Contract shipments are well up to average. Prices are being maintained at previously quoted levels. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—The starch market continues to exhibit a very firm undertone, due to the high prices of raw materials. Production is being keyed to take care of current requirements. Supplies are moving into consumption at a steady pace. The quotation on paper makers' starch is now $3.82 per 100 pounds, in bags, and $3.99 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Steadiness prevails in the sulphate of alumina market. Demand for this product is moderately active and prices are holding up to schedule in a satisfactory manner. Commercial grades of sulphate of alumina are offered at from $1.40 to $1.55 per 100 pounds. The iron free is quoted at from $1.90 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market is still in a strong position, and the demand for this product from the mills continues active. The movement into consumption is being maintained at a steady pace. Prices are steady to firm. The grades of sulphur used in the paper mills are quoted at from $18 to $19 a ton, in bulk, at mine, according to quantity. The spot quotation is $20 per ton.

TALC.—Business in the talc market is quite satisfactory for the time of the year. The demand is about normal at present and prices are generally holding up to former levels. American talc is still quoted at from $16 to $18 a ton, at eastern mines. French talc is offered at from $18 to $22 a ton, ship side.

Better Demand in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 26, 1928.—While the demand for various grades of paper here is not all that could be wanted, yet there has been some slight improvement toward the middle and end of March and the situation is more encouraging. Reports of sales managers of the various paper houses here are rather widely different. With some, business has been very good, while others say there is a dullness in the demand. It is almost certain, however, that March will finish ahead of the same month last year.

One thing is certain, however, the sales departments are working as they did not believe it possible to work. Stocks in the printing establishments are not heavy and an effort is being made to build these up. And the printing business also is showing some signs of life following weeks of dullness. Spring advertising campaigns are being started and this is aiding the business.

An average demand is reported for news print, virtually all the state papers in Indiana carrying the usual volume of business for this time of the year. Some slight increase is shown in demand for better grades of paper and book paper. And the situation in this regard is rather better than it has been for some time, inquiries being more numerous.

Some improvement also is seen in the paper bag market, with slight increases in prices and a fair increase in demand. Inquiries now are being received in much larger volume for roofing papers and building papers. This demand is certain to increase greatly before the middle of April, when the building season will be in full swing.

Coarse paper demand is increasing, with the box manufacturers actively in the market. In this line the coming of Easter is plainly noticeable.

Bailey Meter Co. Changes

The Bailey Meter Company, Cleveland, Ohio, announces the appointment of M. Greenberg as acting manager of its Pittsburgh Office, located at 402 Oliver Building. Mr. Greenberg, formerly manager of the company's St. Paul office, will now have charge of the sales and service work for the Bailey Meter Company in the Pittsburgh territory.

Mr. E. Brosius, formerly manager of the Pittsburgh Office, sailed for Durban, South Africa on January 28 to take charge of the installation and adjustment of Bailey Automatic Combustion Control Equipment recently shipped to that point for a new pulverized coal fired boiler plant.

Highway beautification has been undertaken by the Nekoosa-Edwards Paper Company, of Port Edwards, Wis. Most of the land along State Trunk Highway 13 between Wisconsin Rapids and Nekoosa is owned by the company, and owners of sign boards have been ordered to take them down. C. A. Jasperson, of the paper company, is in charge of this work.

For reliable running and average long life

LINDSAY FOURDRINIER WIRES

are unsurpassed

We make them for the largest and fastest machines.

Cylinder Wires All Sizes

The Lindsay Wire Weaving Co.

Collinwood Sta. CLEVELAND, OHIO

PQ

What he sees first in your paper

Does your paper make a good impression? The "finish" introduces your sheet to the paper buyer. The best foot foremost is sure when Quartz Quality silicate is used in the beater. A hard, smooth surface, and snap and body result when the right silicate in the proper amount is a part of the furnish. Ask for "A-Syrup" or "S" Brand silicate.

Philadelphia Quartz Co.

SILICATE HEADQUARTERS
PHILADELPHIA

Prompt deliveries made from stocks in
NEW YORK
BOSTON
PHILADELPHIA
CHICAGO

Our hat has been in the ring—

TRADE U MARK

for over half a century. We believe we know what constitutes good dyestuffs. Our customers think so too—for they stick to us. Any Heller & Merz dyestuff is a good dyestuff.

And we make good on service also.

The HELLER & MERZ COMPANY
305 Hudson St., New York

Boston 287 Atlantic Ave. | Chicago 146 W. Kinzie St. | Philadelphia 114 Market St.

Springfield, Mass. 24 Lester Street

Factory—NEWARK, N. J.

Clay

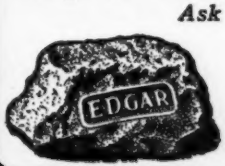
300 tons daily

AMERICAN MADE FOR AMERICAN TRADE

H. T. BRAND COATING CLAY
and
High Grade Filler Clay

A product developed as a result of 43 years experience in washing American Clays. Today being used in many of the largest paper mills.

Ask for Samples.



The EDGAR BROS. CO.
50 Church St. New York

Market Quotations

Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
A. P. W. Pulp & Power, 7s 1945	101½	103
American Writing Paper, 6s 1947	80	82
Bastrap Pulp & Paper, 6½s 1940	100	103
British Columbia Pulp & Paper, 6s 1950	86	92
Beaver Products Corp., 7½s 1942	106	109
Bedford Pulp & Paper, 6½s 1942	98½	None
Brown Paper Co., 1st 5½s 1946	96½	99
Bryant Paper Co., 6s 1942	100½	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper, 7s 1933	85	None
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	99	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corp'n, 1st 6s 1945	95	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	100	102
Donnaconna Paper, 6s 1940	101	102½
Dells Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	89	91
Eddy Paper, 7½s 1931	101	103
Escanaba Paper Serial, 6s 1928	99¼	...
Filer Fibre Serial, 7s 1926-39	95	...
Fort Orange Paper, 7s 1942	99	102
Fox River Paper, 7s 1931	99	...
Gair Company, 5½s 1942	96	99
Gilbert Paper Co., 6½s 1926-29	91	None
Hammermill Paper, 6s 1939	100	103*
Hoberg Paper & Fibre, 7s 1937	94½	96
Itaska Paper & Prairie River Power, J+5½s 1926-38	99	101
Itaska Paper, 1st 6s 1933-38	99	101
Kalamazoo Veg. Parchment, 6s 1938	98	...
Marinette & Menominee, 7½s 1936	100	103
Menasha Printing & Carton, 6½s 1939	99½	...
Monroe Paper Products, 7½s 1932	96	...
Munising Paper, 6s 1927-36	96	100
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	95	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	104	...
Paepcke Paper Mills, 7s 1930	99	None
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	96½	98½
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Queens City Paper, 7s 1932	95	100*
Richardson Co., 6s 1938	100	...
River Raisin Paper, 6s 1936	96	...
Spanish River Pulp & Paper, 8s 1941	108	110
Stevens & Thompson Paper, 6s 1942	93	95
St. Anne Paper, 6½s 1946	99	101
St. Croix Paper, 5s 1936-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	99½	101
Tait Paper & Color Industries, 6s 1934	91	95
Taggart Bros. Co., 6s 1944	95	97
Ticonderoga Pulp & Paper, 5s 1930	94	98
Ticonderoga Pulp & Paper, 6s 1940	99	101
Warren (The S. D.) Company, 6s 1945	99	101
Wotab Paper, 6½s 1943	102	...
Westfield River Paper, 7s 1926-43	91	...
Whitaker Paper, 7s 1942	106	108

STOCKS	BID	ASKED
American Box Board, Pfd.	8	10
American Box Board, Com.	8	10
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P., Pfd	54	58
Brompton Pulp & Paper, 8% Pfd	100	102
Brown Corpn., 7% Pfd.	100	104
Champion Fibre, 7% Pfd.	106	112
Diem & Wing, 7% Cum. Pfd	90	...
Eastern Mfg. Co., 1st Pfd.	28	33
Great Northern Paper, Com.	70	75
Hammermill Paper, 7% Pfd	105	110
Hinde & Dauch, Com	135	...
Hinde & Dauch, Pfd.	100	...
Holyoke Card & Paper	160	None
Marathon Paper Mills, Com.	125	...
Midwest Box Co., Pfd. 8%	94	98
Midwest Box Co., Pfd. 6%	92	97
Louis De Jonge Co., 7% Pfd.	93	96
Oxford Papers, Com.	160	170
Oxford Paper Co., Pfd.	105	108
Penobscot Chemical Fibre, Com.	65	75*
Richardson, 7% Pfd.	160	...
Rubberoid	74	77
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	101½	104½
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper Company	50	55
West Virginia Pulp & Paper, Pfd.	101	103
Whittaker Paper 7% Cum. Pfd.	98	103

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.50	@ 4.75
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	45.00	@47.50
Straw	57.50	@60.00
Chip	42.50	@45.00
Binders' Boards	70.00	@75.00
Sgl. Mla. Ll. Chip.	55.00	@60.00
Wood Pulp	80.00	@85.00
Container	67.50	@72.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	30.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.55	@ 4.25
Easy Bleaching	2.70	@ 2.90
No. 1 strong unbleached	2.60	@ 2.70
Mitscherlich unbleached	2.65	@ 3.25
No. 2 strong unbleached	2.50	@ 2.60
No. 1 Kraft	2.55	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	3.75	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.65
Mitscherlich	3.00	@ 3.70
Kraft (Domestic)	2.60	@ 3.30
Soda Bleached	3.25	@ 3.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.75	@12.25
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.50	@ 1.60
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Dark Cuttings	2.75	@ 3.25
New Mixed Cuttings	3.00	@ 3.50
Ord. Light Prints	2.25	@ 2.50
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.50	@ 1.60
Shoppery	1.45	@ 1.55
French Blues	2.25	@ 2.50

Old Rope and Bagging

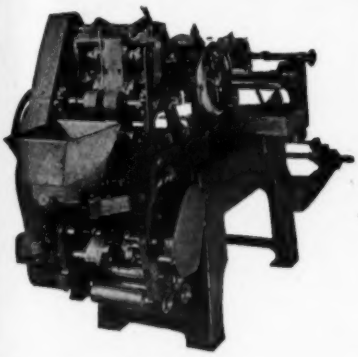
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.65	@ 1.75
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, heavy	1.60	@ 1.65
Bright Bagging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	3.00	@ 3.10
Domestic	3.25	@ 4.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.25	@ 3.50
Hard, White, No. 2	2.75	@ 3.00
Soft, White, No. 1	2.60	@ 2.85
Flat Stock—		
Stitchless	1.75	@ 1.85
Overissue Mag.	1.70	@ 1.80
Solid Flat Book	1.65	@ 1.75
Crumpled No. 1	1.25	@ 1.35
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.75	@ 1.85
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.85	@ .95
Container	.70	@ .80
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.95	@ 2.05
News—		
No. 1 White News	1.60	@ 1.70
Strictly Overissue	.80	@ .90
Strictly Folded	.65	@ .70
No. 1 Mixed Paper	.45	@ .50
Common paper	.30	@ .35

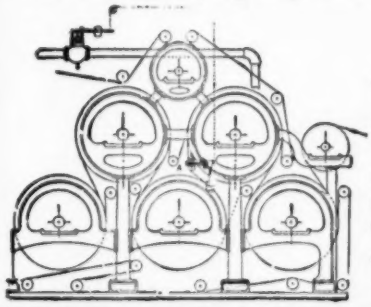


HIGHEST SPEED
Paper Bag Machinery

Get My Quotations Before Placing Your Orders
Special Machinery Designed and Built

A. L. PARRISH,
1702 Robinson St., South Bend, Ind.

The Pickles Drying Regulator **WE ARE SAFE IN OUR PROPOSITION**
YOU'LL MAKE NO MISTAKE IN ACCEPTING IT



Pickles Drying Regulator

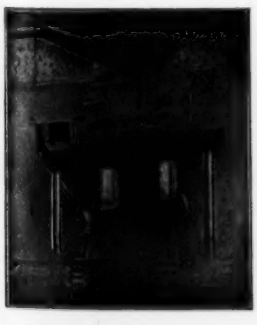
will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.



TYPE "B" IRON EXTRACTOR

It consists of special magnetic surfaces of great power over which the paper stuff is made to pass. As a result, all the iron and many other foreign substances are completely extracted. Hundreds of these devices are in use daily and no one of them has failed to give complete satisfaction. Write us for Bulletins and full data.

THE ROLAND T. OAKES CO., Holyoke, Mass.

Electrical Specialists. *Established 1885*

for **PAPER MAKING**

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton— (Delivered Central Territory)			
Plain Chip	45.00	@	—
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined— (Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.90
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.90	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.20	@	1.30
Blanks	1.70	@	1.80
Krafts	1.90	@	2.00
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (overissue)	.65	@	.75
Old Newspapers—			
No. 1	.65	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks— (F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.08½	@	.09
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05¼	@	.05½
No. 1 Kraft	.06	@	.06¼
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	47.50	@	50.00
Chip Board	42.50	@	45.00
Wood Pulp Board (Carload Lots)	4.50	@	5.00
Binder Boards—			
No. 1, per ton	80.00	@	90.00
No. 2, per ton	75.00	@	80.00
Carload lots	65.00	@	75.00
Tarred Felts—			
Regular	58.00	@	63.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.93	@	2.08
No. 1 Mixed Paper	.65	@	.70

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	—	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03¼
Khaki Cuttings	.04½	@	.05
Corduroy	03	@	.03¾
New Canvas	.08	@	.09½
New Black Mixed	.05	@	.05½

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	2.00
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.25	@	2.00
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.50	@	1.75
Wool Tares, heavy	3.00	@	3.50
Mixed Strings	1.25	@	1.35
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	—	@	2.50

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.25	@	3.35
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.50	@	2.75
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.75	@	1.85
No. 1 Books, heavy	1.30	@	1.35
No. 2 Books, light	.85	@	.90
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.00	@	1.10
Container Manila	.90	@	1.00
Old Kraft	2.00	@	2.20
Common Paper	.55	@	.60
No. 1 Mixed Paper	.60	@	.75
Straw Board, Chip	.65	@	.75
Binders Board, Chip	.65	@	.75
Overissue News	.80	@	.90
Old Newspaper	.50	@	.60

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02¼	@	.02¾
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.60	@	1.75
Black Stockings	3.50	@	3.75
Roofing Stock—			
No. 1	1.75	@	1.80

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03½	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04¼	@	.05
Common Bogus	.02¾	@	.02¾
Delivered New England points			
Straw Board, rolls .009			57.50
Straw Board in Sheets, basis 35s to 70s	34.50	@	55.00
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp lined board	35.00	@	60.00
Single White, patent coated board bender	72.50	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.10
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.60	@	—
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.10	@	2.25
No. 1 Books, Heavy	1.75	@	1.85
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.25	@	1.35
White Blank News	1.40	@	1.50
Old Kraft	1.90	@	2.00
Print Manila	.70	@	.80
No. 1 Mixed Paper	.45	@	.50
Overissue News	.70	@	.80
Old Newspapers	.50	@	.60
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	1.75	@	—
Domestic	1.65	@	1.75
Manila Rope and Strings—			
Foreign	2.62½	@	2.75
Domestic	—	@	3.00
Mixed Strings	.90	@	1.00
Scrap Burlaps	1.50	@	1.62½
Wool Tares, heavy	1.65	@	—
New Burlap Cutting	2.25	@	2.37½

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.11	@	.11½
Silesias, No. 1	.07	@	.07¼
New Unbleached	.09½	@	.10
Fancy	.05	@	.05½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.07	@	.07½
New Black, soft	.04	@	.04¾
Khaki Cuttings	.04¼	@	.05¼
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(Price f. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	5.50	@	5.75
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.00	@	2.12½
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.70	@	—
No. 2	1.50	@	—
No. 3	1.10	@	—
No. 4	1.10	@	—

Foreign Rags

(F. o. b. Boston)

Dark Cottons	—	@	1.50
New No. 1 Shirt Cuttings	10.50	@	11.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.25	@	—
New Checks & Blues	4.50	@	4.65
Old Fustians	1.90	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rag	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp

(F. o. b. Mill)

Ground Wood	27.00	@	28.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	50.00	@	52.50
Sulphite, bleached	68.00	@	70.00
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.12	@	.12½
Fancy Shirt Cuttings	.06	@	.06½